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Field Sampling Plan / Quality Assurance Project Plan

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Volume III - Data Validation Procedures and Laboratory Certifications

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Validation Annex A

Data Validation Procedures for Analyses of Volatile Organic Compounds (VOCs) and Semi-Volatile Compounds (SVOCs) in Solid and Liquid Matrices

Data Validation Procedures for Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) in Solid and Liquid Matrices

I. Introduction

This Standard Operating Procedure (SOP) describes the data validation procedures for a United States Environmental Protection Agency (EPA) Region I tiered review of the data for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) conducted by EPA Methods 8260B and 8270C, respectively. Data review procedures presented in this SOP were developed from the applicable quality control criteria specified in the following EPA document: Region I, *EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses* (July 1996, revised December 1996) (EPA Region I Guidelines).

II. EPA Region I Tiered Validation Procedures

All VOC and SVOC analytical data will be validated to a Tier I level following the procedures presented in the EPA Region I Guidelines (cited above). The basic Tier I review consists of a completeness evidence audit to ensure that all laboratory data and documentation are present. Additionally, for projects subject to this FSP/QAPP, the Tier I review will be modified and expanded to include a number of elements of Tier II review, including review of each sample delivery group (SDG) to identify data deficiencies that may potentially result in qualification of the data (e.g., systematic deviations such as low calibration response factors). Based on this modified Tier I review, a subset of the data will be identified for additional Tier II review. If QA/QC deviations are identified during the modified Tier I review, those deviations will be addressed in the Tier II review. Otherwise, a minimum of 25% of the data will be chosen at random to be subjected to a Tier II review, which will consist of the Tier I completeness evidence audit and review of all data package summary forms for identification of QA/QC parameter deviations. The Tier II data review will be used to identify and evaluate systematic QA/QC deficiencies that may affect any or all of the sample data presented in a specific data package. The Tier II data validation also includes an evaluation of field duplicate Relative Percent Difference (RPD) compliance. Additional Tier II review and Tier III (recalculation of sample results) review may also be performed for a larger portion of the data set, if required, to fully resolve data usability limitations identified during the modified Tier I data review and initial Tier II review for 25% of the data chosen at random.

The tiered data validation procedures consisting of modified Tier I review for all data, Tier II review of a minimum of 25% of the data, and additional Tier II and Tier III review, as required, will be used to evaluate compliance of each data set with the project-specific data quality objectives. The procedures presented in the following sections will be used to perform the Tier I, Tier II, and Tier III data validation reviews. Qualification of analytical data will also be performed, if required, as specified in the data validation protocols presented below.

III. Tier I Validation Procedures

Tier I validation of a data package consists of verifying that all raw data and forms are included and complete. An analytical data validation summary spreadsheet (in the form presented in Attachment A-2) is prepared to document the data review. The following steps are taken to complete a Tier I review:

Step 1 - Review the laboratory case narrative. During review, if there are any deviations that warrant a more extensive validation procedure, a Tier II review would be initiated to evaluate potential data use limitations.

Step 2 - Compare the chain-of-custody and the sample traffic reports. If there are any inconsistencies or if they are incomplete, then contact the laboratory for resolution.

Step 3 - Verify that all forms are present and complete. If any of the forms are not in the data package, contact the laboratory for a resubmission.

Note: If frequent or severe quality control deviations are present on the above-mentioned forms, a more extensive validation procedure may be warranted. Based on the reviewer's judgment, Tier II or Tier III review may be conducted to fully evaluate the usability of the data.

Step 4 - Verify that the following raw data is provided for each sample and associated QA/QC samples in the data package. Contact the laboratory to obtain missing data (if required):

- Case Narrative
- Chain-of-Custody Forms
- Traffic Reports
- QA Sample Summary Forms
- Instrument Calibration Summary Forms
- Instrument Run Logs
- Sample Preparation Logs
- Instrument/Method Detection Limits
- Standards Preparation Logs

- Supporting (raw) Data

Step 5 - With a blue ink pen, record on the first page of the data package: the validation level, date, and reviewer's initials.

In addition to the steps discussed above, the Tier I review of data packages for projects subject to this FSP/QAPP will be expanded to include some elements of Tier II review, including review of the data packages to identify QA/QC deficiencies that may require qualification of the data.

IV. Tier II Validation Procedures

Tier II validation of a data package consists of the steps mentioned above for a Tier I review, plus review of the data package summary forms for identification of QA/QC deviations. Tier II validation does not include review of the "raw data" or recalculation of sample results. Sample qualification is performed (if required) following the EPA Region I Guidelines.

A. Data Qualifiers

All data qualified due to QA/QC deviations will be clearly recorded on the data summary package Form I, or laboratory equivalent, with a blue ink pen. The laboratory qualification is lined out and the reviewer's qualification placed next to it. The date and the initials of the reviewer will also be placed on Form I. Below is a list of qualifiers that may be used.

J The compound was positively identified, but the associated numerical value is an estimated concentration. This qualifier is used when the data evaluation procedure identifies a deficiency in the data generation process. This qualifier is also used when a compound or analyte is detected at estimated concentrations less than the practical quantitation limit (PQL). (When this qualifier is used in combination with the letter C -- i.e., JC -- that indicates that the sample result is an estimated concentration due to certain QC deficiencies and that a bias-corrected result is available, as discussed further below.)

ND The compound was analyzed for, but was not detected at the method detection limit. The sample PQL (which is normally the same as the reporting limit [RL]) is presented in parentheses and adjusted for dilution and (for solid samples only) percent moisture. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, non-detected sample results are displayed as ND(PQL). (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier U for non-detected compounds.)

ND J The compound was analyzed for and not detected, but the sample PQL (presented in parentheses and normally the same as the RL) is estimated and may or may not represented the actual level of quantitation. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, these non-detected sample results are displayed as ND(PQL)J. (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier UJ for non-detected compounds in this category.)

R Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data should not be used for any qualitative or quantitative purposes.

B. Holding Times

Criteria

1.0 Purgeables: Water samples are preserved to a pH of less than 2 with HCl, H_2SO_4, or solid $NaHSO_4$, and stored at 4° centigrade. Samples must be analyzed within 14 days. Soil samples are preserved per SW-846 Method 5035 and must be analyzed within 14 days.

1.1 Extractables (Includes Base/Neutrals and Acids): Samples (waters or soils) and extracts must be preserved at 4° centigrade. Soil and water samples must be extracted within seven days and the extract must be analyzed within 40 days.

Action

Specific holding times for each analysis and sample type are presented in Table 1 of the FSP/QAPP. The following steps are performed for the validation of data due to holding times:

Step 1 - Establish the holding time by comparing the sampling date on the chain-of-custody with the dates of analysis and/or extraction on Form I, or laboratory equivalent. The chain-of-custody is also reviewed to determine if the samples were properly preserved.

Step 2 - If the holding times are exceeded by less than 24 hours, then no qualification of data is needed.

Step 3 - If the holding times are exceeded by more than 24 hours but less than 14 days, then all positive results are qualified as estimated (J) and the non-detected compounds are qualified as estimated (ND(PQL)J).

Step 4 - If the holding times are exceeded by more than twice the specified holding time, then all results are qualified as unusable (R).

C. Percent Moisture Content

Criteria

Soil/sediment/solid sample results must be adjusted for percent solids and must have percent solids greater than 30%.

Action

The following steps are performed by reviewing the sample result summary form during the validation of percent solids data:

Verify that the percent solids of soil/sediment/solid samples are greater than 30%.

a. Soil/sediment/solid sample results with a percent solid of less than 10% are qualified as unusable (R)

b. Positive and non-detected soil/sediment/solid sample results with percent solid results within the range of greater than 10% to less than 30% are qualified as estimated (J) and unusable (R), respectively.

D. GC/MS Tuning

Criteria

The following criteria must be met at all times:

1.0 Decafluorotriphenylphosphine (DFTPP)

m/z	Ion Abundance Criteria
51	30.0 - 60.0% of m/z 198
68	less than 2.0% of m/z 69
70	less than 2.0% of m/z 69
127	40.0 - 60.0% of m/z 198
197	less than 1.0% of m/z 198
198	base peak, 100% relative abundance
199	5.0 - 9.0% of m/z 198
275	10.0 - 30.0% of m/z 198

365	greater than 1.0% of m/z 198
441	present, but not less than m/z 443
442	greater than 40.0% of m/z 198
443	17.0 - 23.0% of m/z 442

1.1 Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria
50	15.0 - 40.0% of the base peak
75	30.0 - 60.0% of the base peak
95	base peak, 100% relative abundance
96	5.0 - 9.0% of the base peak
173	less than 2.0% of m/z 174
174	greater than 50.0% of the base peak
175	5.0 - 9.0% of m/z 174
176	greater than 95.0%, but <101.0% of m/z 174
177	5.0 - 9.0% of m/z 176

Action

Review Form V, or laboratory equivalent, to determine if a mass calibration is in error. If an error is identified, then all data associated with the evaluated spectra are qualified as unusable (R).

E. Calibration

Criteria

1.0 Initial Calibration for VOCs and SVOCs

1.0.1 All average Relative Response Factors (RRFs) for must be greater than or equal to 0.05.

1.0.2 All Percent Relative Standard Deviation (%RSD) values must be less than or equal to 30%.

1.1 Continuing Calibration VOCs and SVOCs

1.1.1 All daily RRFs must be greater than or equal to 0.05.

1.1.2 All Percent Difference (%D) values must be less than or equal to 25%.

Action

The following steps are performed by reviewing Forms VI and VII, or laboratory equivalents, during the validation of calibration data:

Step 1 - Verify that all the average RRFs for the initial calibration are greater than 0.05. If the average RRF is not in control, then:

a. All positive sample results for that compound are qualified as estimated (J).

b. All non-detected sample results for compounds that do not meet their analytical method defined RRF are qualified as unusable (R). Several of the organic compounds exhibit instrument RRFs that are below the EPA Region I minimum value of 0.05, but meet the analytical method criterion, which does not specify minimum RRFs for these compounds. These compounds will be calibrated for by the laboratory at a higher concentration than the compounds that normally exhibit RRFs greater than the EPA Region I minimum value of 0.05 in an effort to demonstrate acceptable response. EPA Region I Guidelines state that non-detected compound results associated with a RRFs less than the minimum value of 0.05 are to be rejected. In the case of these select organic compounds, where the RRFs are an inherent problem with the current analytical methodology; the non-detected samples results will be qualified as an estimate (J).

Step 2 - If use of data is critical, the average RRF will be calculated with the elimination of the low or high calibration standard. If the average RRF is in control with the elimination of the low calibration standard, then:

a. All non-detected sample results for that compound are adjusted to the lowest calibration standard used to calculate the acceptable average RRF.

b. All positive sample results for that compound which are below the lowest calibration standard used to calculate the acceptable average RRF are qualified as estimated (J).

If the average RRF is in control with the elimination of the high calibration standard, then:

a. All positive sample results for that compound which are above the highest calibration standard used to calculate the acceptable average RRF are qualified as estimated (J).

Step 3 - Verify that all %RSD values for the initial calibration are greater than 30%. If any %RSD is not in control, then all detected and non-detected sample results for that compound are qualified as estimated (J) and (ND(PQL)J), respectively.

Qualification of VOC/SVOC Compounds Based on Initial Calibration Deviations

Sample Results	Avg. RRF ≥ 0.05 and %RSD ≤ 30.0%	Avg. RRF < 0.05 and %RSD ≤ 30.0%	Avg. RRF ≥ 0.05 and %RSD > 30.0%	Avg. RRF < 0.05 and %RSD > 30.0%
Detects	-	J	J	J
Non-Detects	-	R or ND(PQL)J	ND(PQL)J	R or ND(PQL)J

Step 4 - Verify that all RRF values for the continuing calibration are greater than 0.05. If any continuing calibration RRF is not in control, then:

a. All positive sample results for that compound are qualified as estimated (J).

b. All non-detected sample results for are qualified as unusable (R). Several of the organic compounds exhibit instrument RRFs that are below the EPA Region I minimum value of 0.05, but meet the analytical method criterion, which does not specify minimum RRFs for these compounds. These compounds will be calibrated for by the laboratory at a higher concentration than the compounds that normally exhibit RRFs greater than the EPA Region I minimum value of 0.05 in an effort to demonstrate acceptable response. EPA Region I Guidelines state that non-detected compound results associated with a RRFs less than the minimum value of 0.05 are to be rejected. In the case of these select organic compounds, where the RRFs are an inherent problem with the current analytical methodology; the non-detected samples results will be qualified as an estimate (J).

Step 5 - Verify that all %D values are greater than 25%. If any %D is not in control, then all detected and non-detected sample results for that compound are qualified as estimated (J) and (ND(PQL)J), respectively.

Qualification of VOC/SVOC Compounds Based on Continuing Calibration Deviations

Sample Results	Avg. RRF ≥ 0.05 and %RSD ≤ 25.0%	Avg. RRF < 0.05 and %RSD ≤ 25.0%	Avg. RRF ≥ 0.05 and %RSD > 25.0%	Avg. RRF < 0.05 and %RSD > 25.0%
Detects	-	J	J	J
Non-Detects	-	R or ND(PQL)J	ND(PQL)J	R or ND(PQL)J

F. Blanks

Criteria

1.0 No contaminants should be present in the blank(s).

1.1 For each matrix and for each 12-hour window, a method blank must be analyzed for volatile analyses.

1.2 For each matrix and each extracted batch, a method blank must be analyzed for semi-volatile analyses.

Action

Qualification of sample results due to blank contamination is dependent on the conditions and origin of the blank. No sample results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in the blank for the compounds listed below, or five times the blank amount for all other compounds. No sample results are corrected by subtracting blank values. Specific qualifications of sample data are as follows:

Step 1 - Review Form IV, or laboratory equivalent, within the data package to ensure that criteria III.E.1.1 and III.E.1.2 are in compliance. If they are not, the laboratory will be contacted by the reviewer for a written explanation.

Step 2 - Review Form I, or laboratory equivalent, for all blanks within the data package.

Step 3 - If a compound is found in the blank but not in the sample, then the data are not qualified.

Step 4 - When any compound (other than the five listed below) is detected in the sample and the sample concentration is less than five times the concentration detected in the associated blank, the data are qualified. For the following five compounds, the sample results are qualified if the sample concentration is less than 10 times the concentration detected in the blank.

Common laboratory contaminants:

a. Methylene chloride

b. Acetone

c. Toluene

d. 2-Butanone

e. Common phthalate esters

Note: Any difference between the sample analyses and the related blank analyses which involve weights, volumes, or dilution factors, must be taken into account when the 5-times or 10-times criteria are applied.

The following are examples of how qualifications apply to blank data:

a. When the sample result is greater than the PQL but less than the action level (5-times or 10-times) from the blank result, the sample results are qualified as non-detects. As in the example below, the sample result for the 10-times rule is less than 70 (or 10 x 7), and for the 5-times rule the result is less than 35 (or 5 x 7); therefore, they are qualified as described.

Factor	10-times	5-times
Blank Result	7	7
PQL	5	5
Action Level	70	35
Sample Result	60	30
Qualified Sample Result	ND(60)	ND(30)

b. When the sample result is less than the PQL and also less than the action level (5-times or 10-times) from the blank result, the sample results are qualified as non-detects by using the PQL as the detection limit. As in the example below, the sample result is less than the PQL in both instances and the sample results are qualified as described.

Factor	10-times	5-times
Blank Result	6	6
PQL	5	5
Action Level	60	30
Sample Result	4 J	4 J
Qualified Sample Result	ND(5)	ND(5)

c. When the sample result is greater than the blank action level (5-times or 10-times), the sample results are not qualified. As in the example below, the sample results are greater than the blank action level and the sample results are not qualified.

Factor	10-times	5-times
Blank Result	10	10
PQL	5	5
Action Level	50	50
Sample Result	120	60
Qualified Sample Result	120	60

Step 5 - When excessive amounts of contamination exist (i.e., saturated peaks by GC/MS), all compounds affected are qualified as unusable (R).

Note: As mentioned above, similar consideration is given to Tentatively Identified Compounds (TICs) which are found in both the sample and the associated blank(s).

G. Surrogate Recovery

Criteria

Sample and blank surrogate recoveries for VOCs and SVOCs must be within the control limits listed in Table 5 of the FSP/QAPP.

Action

Qualification of the data due to surrogate recoveries being out of control is based on the evaluation of all data provided in the data package, especially considering the complexity of the effect of sample matrices. These qualifications are completed in the following steps:

Step 1 - Surrogate recoveries tabulated on Form II, or laboratory equivalent, for each fraction are evaluated against the control limits provided in Table 5.

Step 2 - No qualification of the data is needed if less than two surrogates are out of control for the base/neutral or acid fraction, or one in the volatile fraction, or unless any surrogate has a recovery less than 10%.

Step 3 - If at least two surrogates in a base/neutral or acid fraction or one surrogate in the volatile fraction are out of control, the following steps are taken:

a. All positive results for that associated fraction with surrogate recoveries above the upper control limit are qualified as estimated (J).

b. All positive results for that associated fraction with a surrogate recovery that is less than the lower control limit are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) re-analyzing the existing sample; or (iii) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database.

c. All non-detected results associated with a surrogate recovery that is less than the lower control limit but greater than 10% are qualified as estimated (ND(PQL)J).

Step 4 - If any surrogate recoveries in a fraction are less than 10%, all non-detected results for that fraction are qualified as unusable (R).

Step 5 - When the blank analysis involves surrogate recoveries out of control, the related sample data are reviewed and qualified in the following manner:

a. If the sample data does not contain any surrogate out of control, then the data are not qualified.

b. If the sample data does contain a surrogate out of control, then the sample data are qualified as mentioned above in Steps 2 through 4.

Note: In this special circumstance, the problem is considered to be within the laboratory control and is so noted in the validation report.

Qualification of VOC/SVOC Compounds Based on Surrogate Recovery Deviations

Sample Results	One or more surrogates < 10%	One VOC, two B/N, or two Acid surrogates 10% ≤ %Rec < LL	All VOC, one B/N, or one Acid surrogate LL ≤ %Rec ≤ UL	Avg. RRF < 0.05 and %RSD > 25.0%
Detects	J	J	-	J
Non-Detects	R	ND(PQL)J	-	-

LL - Lower limit of method QC acceptance criteria.

UL - Upper limit of method QC acceptance criteria.

H. Matrix Spike (MS)/Matrix Spike Duplicate (MSD)

Criteria

1.0 Spike recoveries must be within the control limits in Table 5 of the FSP/QAPP.

1.1 RPD values between MS and MSD recoveries must be within the control limits in Table 5.

Action

If recovery results are not within the control limits, the following steps are taken to qualify the data:

Step 1 - If the recovery results are below the lower control limit presented in Table 5, the positive and non-detected results for this compound are qualified as estimated (J, ND(PQL)J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) reanalyzing the existing sample; or (iii) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database.

Step 2 - If the recovery result is less than 10%, the non-detects for that compound in the unspiked sample are qualified as rejected (R). This is the only instance that a non-detect is qualified due to recovery results being out of control.

Step 3 - If any of the RPD values are greater than the limits presented in Table 5, positive results for that compound are qualified as estimated (J) in the unspiked sample.

Qualification of VOC/SVOC Compounds Based on MS/MSD Recovery and MS/MSD RPD Deviations

Sample Results	Recovery < 10%	10% ≤ %Recovery < Lower QC Limit	Lower QC Limit ≤ Recovery Upper QC Limit	Recovery > Upper QC Limit	RPD > QC Limit
Detects	J	J	-	J	J
Non-Detects	R	ND(PQL)J	-	-	ND(PQL)J

I. Field Duplicates

Criteria

1.0 For water matrices, each compound with a detectable concentration two times greater than the PQL must have an RPD value that is less than 30%.

1.1 For soil matrices, each compound with a detectable concentration two times greater than the PQL must have an RPD value that is less than 50%.

Action

Step 1 - Calculate all RPD values for positive results between the sample and the field duplicate.

$$\text{Calculation:} \quad RPD = \frac{\text{Sample Result - Field Duplicate}}{\text{(Sample Result + Field Duplicate)/2}} \times 100$$

Step 2 - If the RPD value is greater than 30% in a water matrix and both sample results are greater than two times the PQL, the result for that compound in both samples is qualified as estimated (J).

Step 3 - If the RPD value is greater than 50% in a soil matrix and both sample results are greater than two times the PQL, the result for that compound in both samples is qualified as estimated (J).

Step 4 - If the both sample results are less than two times the PQL, qualification of the sample data is not required.

Step 5 - If the one sample result is less than two times the PQL and the other is greater than two times the PQL, the result for that compound in both samples is qualified as estimated (J).

Qualification of VOC/SVOC Compounds Based on Field Duplicate RPD Deviations

RPD	**Aqueous > 30% Non-Aqueous > 50%**	**Aqueous > 30% Non-Aqueous > 50%**	**Aqueous > 30% Non-Aqueous > 50%**
Sample Results	Both duplicate sample concs. ≥ 2 times PQL	PQL ≤ both duplicate samples concs. < 2 times PQL and ≥ PQL	One sample conc. ≥ 2 times PQL and other sample conc. < 2 times PQL
Detects	J	-	J
Non-Detects	-	-	-

J. Internal Standards Performance

Criteria

1.0 Internal standard (IS) area counts must not vary by more than a factor of two (-50 to +100%) from the associated continuing calibration standard.

1.1 The retention time of the internal standard must not vary by more than +/- 30 seconds from the associated continuing calibration standard.

Action

Step 1 - Review the tabulated results for the comparison of the IS areas of the samples and the related continuing calibration standard on Form VIII, or laboratory equivalent. If an IS area is outside the -50 to +100% limits, the positive sample results quantitated using that IS are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) re-analyzing the existing sample; or (iii) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database.

Step 2 - If the IS areas of a sample and the related continuing calibration standard on Form VIII, or laboratory equivalent, are less than the -50% criterion but greater than -20%, then non-detected sample results are qualified as estimated (ND(PQL)J) for that sample fraction.

Step 3 - If the IS areas of a sample and the related continuing calibration standard on Form VIII, or laboratory equivalent, are less than -20%, then non-detected sample results are qualified as unusable (R) for that sample fraction.

Step 4 - If the IS areas of a sample and the related continuing calibration standard on Form VIII, or laboratory equivalent, are greater than the 100% criterion, then detected sample results are qualified as estimated (J) for that sample fraction.

Step 5 - Review the tabulated results for comparison of the IS Retention Time (RT) of the samples and the related continuing calibration standard on Form VIII, or laboratory equivalent. If an IS retention time varies by more than 30 seconds, the data are qualified as unusable (R).

Qualification of VOC/SVOC Compounds Based on Field Duplicate RPD Deviations

Sample Results	Area Counts < 20% of the associated calibration	20% ≤ Area Counts < LL	LL ≤ Area Counts ≤ LL	Area Counts > UL
Detects	J	J	-	J
Non-Detects	R	ND(PQL)J	-	-

LL - Lower limit of method QC acceptance criteria.

UL - Upper limit of method QC acceptance criteria.

V. Tier III Validation Procedures

Tier III validation of a data package consists of the steps mentioned above for a Tier I and Tier II validation plus review of the "raw data" and recalculation of approximately 10% of the sample results. The confirmation of detected compounds and tentatively identified compounds is also reviewed.

A. Compound Quantitation and Reported Quantitation Limits

Criteria

1.0 The quantitation of detected compounds and the adjustment of the PQL for dilutions and percent solids must be recalculated for 10% of the data.

1.1 The compound's RRF and sample result quantitation must be calculated based on the IS specified in Tables A-1 and A-2.

Action

If the criteria above have not been followed, the laboratory will be contacted by the reviewer and the laboratory will be responsible for a correction of the quantitation and resubmission of the reported data.

B. Detected Identification

Criteria

1.0 Compounds must be within +/- 0.06 Relative Retention Time (RRT) units of the continuing calibration standard RRT.

1.1 Mass spectra of the sample compound and of the current reference spectra must match the following criteria:

1.1.1 All ions present in the reference spectra must be at a relative intensity greater than 10% and must be present in the sample spectrum.

1.1.2 The relative intensities of the ions specified above must agree within +/- 20% (absolute) between the reference and sample spectrum (example: for an ion with an abundance of 50% in the reference spectrum, the corresponding sample ion abundance must be between 30% and 70%).

1.1.3 Ions greater than 10% in the sample spectrum but not present in the reference spectrum must be considered and accounted for.

1.1.4 If a compound cannot be verified by all of the above criteria, but in the technical judgment of the mass spectral interpretation specialist the identification is correct, the laboratory will report the identification and continue with the quantitation.

Action

Professional judgment is used for the qualitative criteria for GC/MS analysis of target compounds. If it is determined that the wrong identification was made, all such data are qualified as not detected (ND).

C. Tentatively Identified Compounds (TICs)

Criteria

1.0 For each sample, the laboratory may conduct a mass spectral search of the NBS library. Report the possible identity of the 10 largest VOC fraction peaks and the 20 largest SVOC fraction peaks which are not surrogate, internal standard, or target compounds, but which have an area/height that is greater than 10% of the size of the nearest internal standard. TIC results, if reported by the laboratory, will be reported for each sample on Organic Analyses Data Sheet (Form I, TIC), or laboratory equivalent.

1.1 Requirements for the tentative identification are as follows:

1.1.1 Major ions (greater than 10% relative intensity) in the reference spectrum should be present in the sample spectrum.

1.1.2 Relative intensities of the major ions should agree within +/- 20% between the sample and the reference spectra.

1.1.3 Molecular ions present in the reference spectrum should be present in the sample spectrum.

1.1.4 Ions present in the sample spectrum but not in the reference spectrum should be reviewed for possible background contamination, interference, or coelution of additional TIC or target compounds.

1.2 When the above criteria are not met, but in the technical judgement of the data reviewer or the mass spectral interpretation specialist the identification is correct, the data reviewer may report the identification.

Action

The following steps are taken in qualifying the TICs if they are reported by the laboratory:

Step 1 - Review Form I, or laboratory equivalent, to verify that all TIC results are qualified as estimated concentrations (J).

Step 2 - If it is determined that the tentative identification of a compound is not acceptable, the tentative identification is changed to "unknown" or the correct compound identification.

Step 3 - If all of the required peaks are not searched, the laboratory is contacted to complete the library search of that sample.

Step 4 - Any TIC results that are not sufficiently above the level in the blank are not reported.

Note: Dilutions and sample size must be taken into account when comparing the amounts present in the blanks and samples.

Step 5 - When a compound is not found in the blanks but is a suspected artifact of a common laboratory contaminant, the sample result is qualified as unusable (R).

Step 6 - In the identification of TICs, professional judgment is used. In case there is more than one reasonable match, the result will be reported as "either compound X or compound Y." If the results lack isomer specificity, the TIC result is changed to a non-specific isomer result (e.g., 1,3,5-trimethyl benzene to trimethyl benzene isomer) or to the class of compound (e.g., 2-methyl-3-ethyl benzene to substituted aromatic).

Step 7 - If a sample's TIC match is poor but other samples from the data package have the same TIC with an acceptable match, that identification information may be used to identify the TIC result.

ARCADIS

Validation Annex B

Data Validation Procedures for Analyses of Polychlorinated Biphenyls (PCBs)/Pesticides and Herbicides in Solid and Liquid Matrices

Data Validation Procedures for Analyses of Polychlorinated Biphenyls (PCBs)/Pesticides, and Herbicides in Solid and Liquid Matrices

I. Introduction

This Standard Operating Procedure (SOP) describes the data validation procedures for a United States Environmental Protection Agency (EPA) Region I tiered review of the data for polychlorinated biphenyls (PCBs) analyzed by EPA Methods 8082A or 8082 modified or by the congener-specific Green Bay method developed by Pace Analytical Services (NEA013_10), and for the data on pesticides and herbicides analyzed by EPA Methods 8081A and 8151A, respectively. Data review procedures presented in this SOP were developed from the applicable quality control criteria specified in the following documents:

- EPA Region I, *EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses* (July 1996, revised December 1996) (EPA Region I Guidelines);
- EPA Region I. *Pesticide/PCB Data Validation Functional Guidelines - PART III*, Draft (February 2004); and
- Pace Analytical, *Congener-Specific Green Bay Method SOP Number NE013_10* (March 2011)*;*

This SOP will be utilized in the validation of analytical results from solid and liquid samples (e.g., soil, sediment, water, biota). A separate SOP for the validation of PCB data resulting from ambient air samples is provided in Validation Annex F.

II. EPA Region I Tiered Validation Procedures

All analytical data on PCBs, pesticides, and herbicides will be validated to a Tier I level following the procedures presented in the EPA Region I Guidelines (cited above). The basic Tier I review consists of a completeness evidence audit to ensure that all laboratory data and documentation are present. Additionally, for projects subject to this FSP/QAPP, the Tier I review will be modified and expanded to include a number of elements of Tier II review, including review of each sample delivery group (SDG) to identify data deficiencies that may potentially result in qualification of the data (e.g., systematic deviations such as low calibration response factors.) Based on this modified Tier I review, a subset of the data will be identified for additional Tier II review. If QA/QC deviations are identified during the modified Tier I review, those deviations will be addressed in the Tier II review. Otherwise, a minimum of 25% of the data will be chosen at random to be subjected to a Tier II review, which will consist of the Tier I completeness evidence audit and review of all data package summary forms for identification of QA/QC parameter deviations. The Tier II data review will be used to identify and evaluate systematic QA/QC deficiencies that may affect any or all of the sample data presented in a specific data package. The Tier II data validation also includes an evaluation of field duplicate Relative Percent Difference (RPD) compliance. Additional Tier II review and Tier III

(recalculation of sample results) review may also be performed for a larger portion of the data set, if required, to fully resolve data usability limitations identified during the modified Tier I data review and initial Tier II review for a minimum of 25% of the data chosen at random.

The tiered data validation procedures consisting of modified Tier I review for all data, Tier II review of 25% of the data, and additional Tier II and Tier III review, as required, will be used to evaluate compliance of each data set with the project-specific data quality objectives. The procedures presented in the following sections will be used to perform the Tier I, Tier II, and Tier III data validation reviews. Qualification of analytical data will also be performed, if required, as specified in the data validation protocols presented below.

III. Tier I Validation Procedures

Tier I validation of a data package consists of verifying that all raw data and forms are included and complete. An analytical data validation summary spreadsheet (in the form presented in Attachment B-2) is prepared to document the data review. The following steps are taken to complete a Tier I review:

Step 1 - Review the laboratory case narrative. During review, if there are any deviations that warrant a more extensive validation procedure, a Tier II review would be initiated to evaluate potential data use limitations.

Step 2 - Compare the chain-of-custody and the sample traffic reports. If there are any inconsistencies or if they are incomplete, then contact the laboratory for resolution.

Step 3 - Verify that all forms are present and complete. If any of the forms are not in the data package, contact the laboratory for a resubmission.

Note: If frequent or severe quality control deviations are present on the above-mentioned forms, a more extensive validation procedure may be warranted. Based on the reviewer's judgment, Tier II or Tier III review may be conducted to fully evaluate the usability of the data.

Step 4 - Verify that the following raw data is provided for each sample and associated QA/QC samples in the data package. Contact the laboratory to obtain missing data (if required):

- Case Narrative
- Chain-of-Custody Forms
- Traffic Reports
- QA Sample Summary Forms
- Instrument Calibration Summary Forms

- Instrument Run Logs
- Sample Preparation Logs
- Instrument/Method Detection Limits
- Standards Preparation Logs
- Supporting (raw) Data

Step 5 - With a blue ink pen, record on the first page of the data package: the validation level, date, and reviewer's initials.

In addition to the steps discussed above, the Tier I review of data packages for projects subject to this FSP/QAPP will be expanded to include some elements of Tier II review, including review of the data packages to identify QA/QC deficiencies that may require qualification of the data.

IV. Tier II Validation Procedures

Tier II validation of a data package consists of the steps mentioned above for a Tier I review, plus review of the data package summary forms for identification of QA/QC deviations. Tier II validation does not include review of the "raw data" or recalculation of sample results. Sample qualification is performed (if required) following the EPA Region I Guidelines.

A. Data Qualifiers

All data qualified due to QA/QC deviations will be clearly recorded on the data summary package Form I, or laboratory equivalent, with a blue ink pen. The laboratory qualification is lined out and the reviewer's qualification placed next to it. The date and the initials of the reviewer will also be placed on Form I. Below is a list of qualifiers that may be used.

J The compound was positively identified, but the associated numerical value is an estimated concentration. This qualifier is used when the data evaluation procedure identifies a deficiency in the data generation process. This qualifier is also used when a compound or analyte is detected at estimated concentrations less than the practical quantitation limit (PQL). (When this qualifier is used in combination with the letter C -- i.e., JC -- that indicates that the sample result is an estimated concentration due to certain QC deficiencies and that a bias-corrected result is available, as discussed further below.)

ND The compound was analyzed for, but was not detected at the method detection limit. The sample PQL (which is normally the same as the reporting limit [RL]) is presented in parentheses and adjusted for dilution and (for solid samples only) percent moisture. For consistency with the database and summary data tables in documents previously prepared

for investigations at the GE-Pittsfield/Housatonic River Site, non-detected sample results are displayed as ND(PQL). (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier U for non-detected compounds.)

ND J The compound was analyzed for and not detected, but the sample PQL (presented in parentheses and normally the same as the RL) is estimated and may or may not represented the actual level of quantitation. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, these non-detected sample results are displayed as ND(PQL)J. (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier UJ for non-detected compounds in this category.)

R Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data should not be used for any qualitative or quantitative purposes.

B. Holding Times

Criteria

Samples (waters or soils) and extracts must be preserved at <6º centigrade. Water and soil samples for PCB Aroclors must be extracted and analyzed within one year of collection. Soil samples must be extracted within fourteen days and water samples must be extracted within seven days and extracts must be analyzed within 40 days for pesticides, herbicides, and the congener-specific Green Bay method.

Action

Specific holding times for each analysis and sample type are presented in Table 1 of the FSP/QAPP. The following steps are performed for the validation of data due to holding times:

Step 1 - Establish the holding time by comparing the sampling date on the chain-of-custody with the dates of analysis and/or extraction on Form I, or laboratory equivalent. The chain-of-custody is also reviewed to determine if the samples were properly preserved. If samples were not properly preserved at <6º centigrade, then all positive results are qualified as estimated (J) and the non-detected compounds are qualified as estimated (ND(PQL)J).

Step 2 - If the holding times (extraction or analytical) for water and soil are exceeded by less than twice the specified holding time, then all positive results are qualified as estimated (J) and the non-detected compounds are qualified as estimated (ND(PQL)J).

Step 3 - If the holding times (extraction or analytical) are exceeded by more than twice the specified holding time, then all detected results are qualified as estimated (ND(PQL)J) and non-detected results are qualified as unusable (R).

C. Percent Moisture Content

Criteria

Soil/sediment/solid sample results must be adjusted for percent solids and must have percent solids greater than 30%.

Action

The following steps are performed by reviewing the sample result summary form during the validation of percent solids data:

Verify that the percent solids of soil/sediment/solid samples are greater than 30%.

a. Positive and non-detected soil/sediment/solid sample results with a percent solid of less than 10% are qualified as estimated (J) and unusable (R), respectively.

b. Positive and non-detected soil/sediment/solid sample results with percent solid results within the range of greater than 10% to less than 30% are qualified as estimated (J).

Qualification of PCBs/Pesticides/Herbicides Compounds Based on Percent Solids Deviations

Sample Results	Percent Solids > 10.0%and <30.0%	Percent Solids< 10.0%
Detects	J	J
Non-Detects	ND(PQL)J	R

D. Pesticides and PCBs Instrument Performance

Criteria

1.0 The laboratory must report retention time window data on the pesticide/PCBs Standards Summary (Form X Pest-1 or Form X Pest-2), or laboratory equivalent, for each GC column used to analyze samples. Compounds must be within these retention time windows.

1.1 The total percent breakdown for neither DDT nor endrin may exceed 20%. The percent breakdown is the amount of decomposition that endrin and 4,4'-DDT undergo when analyzed by the chromatograph.

1.2 The retention time of each of the single-component PCBs, pesticides, and surrogates must be within the calculated retention time windows.

Action

Review Form V, or laboratory equivalent, to determine if a mass calibration is in error. If an error is identified, then all data associated with the evaluated spectra are qualified as unusable (R).

2.0 If any compound is outside the retention time window listed on Form X Pest-1, Form X Pest-2, or laboratory equivalent, a Tier III validation is warranted.

2.1 DDT and Endrin degradation deviations are qualified in the following manner:

Step 1 - Review DDT breakdown data presented on Form X Pest-1, or laboratory equivalent, to determine if it is greater than 20%. Beginning with the sample following the last in-control standard, qualify the data in the following manner:

a. All positive results for DDT are qualified as estimated (J).

b. If DDT was not detected but DDD and DDE are positive, the quantitation limit for DDT is qualified as unusable (R).

c. All positive results for DDD and/or DDE are qualified as estimated (J).

Step 2 - Review endrin breakdown data presented on Form X Pest-1, or laboratory equivalent, to determine if it is greater than 20%. Beginning with the sample following the last in-control standard and qualify the data in the following manner:

a. All positive results for endrin are qualified as estimated (J).

b. If endrin was not detected but endrin aldehyde and endrin ketone are positive, the quantitation limit for DDT is qualified as unusable (R).

c. All positive results for endrin ketone are qualified as estimated (J).

2.2 Review the retention time %D presented on Form X Pest-1, or laboratory equivalent. The following steps outline the qualification of data for retention time shifts of DCB and TCMX:

If the retention time for any of the single-component pesticides and surrogates is outside the established retention time window, the data are qualified as unusable (R).

E. Calibration

Criteria

1.0 Initial Calibration for Pesticides

The Percent Relative Standard Deviation (%RSD) of calibration factors for single-component pesticides and PCB congeners must not be greater than 20%.

Note: The %RSD linearity check is required only for columns that are used for quantitation of sample and surrogate results. Columns used only to provide qualitative verification are not required to meet this criterion.

1.1 Initial Calibration PCBs and Herbicides

The %RSD for each PCB or herbicide standard must not be greater than 20%.

1.2 Analytical Sequence for Pesticides

1.2.1 Primary Analysis

At the beginning of each 72-hour period, all standards must be analyzed.

1.2.2 Confirmation Analysis

1.2.3 Evaluation Standard Mix A, B, and C are required for the curve.

1.2.4 Only the standards containing the compounds to be confirmed are required. These standards must be repeated after every five samples.

1.2.5 Evaluation Mix B is required after every 10 samples.

1.3 Analytical Sequence for PCBs

1.3.1 Initial Calibration Analysis

Multiple-level standards of Aroclors 1016/1260 are analyzed to establish linearity of the detector. The calibration factors of these Aroclors are applied to the additional Aroclors to determine the concentrations. Single-level standards of the additional Aroclors are analyzed following the Aroclor 1016/1260 standards to determine pattern recognition. A multiple-level calibration may also be performed on the other single Aroclors to establish linearity.

When using the congener-specific Green Bay method, an initial three-point high level and three-point low level linearity check is performed.

1.3.2 Calibration Verification

A calibration verification standard (continuing calibration) must be analyzed at the beginning and end of every 12-hour sequence and once every ten samples for Aroclor PCBs, Pesticides, and Herbicides.

When using the congener-specific Green Bay method, a subset of six congeners and Total PCBs are used to verify the response factors.

1.4 Continuing Calibration

The calibration factor for each standard must be within 15% of the mean calibration factor of the initial curve. When using the congener-specific Green Bay method, the calibration standard must be within 30% for the two low-level peaks (7 and 116) and 15% for the remaining peaks and Total PCBs.

Action

The following steps are performed during the validation of data due to calibration deviations:

Step 1 - Verify that the criterion for the initial calibration linearity have been met by reviewing Form VI Pest-2 and Form VI Pest-3 or laboratory equivalents. If the %RSD for each PCB or herbicide standard is greater than 20%, then all associated positive and non-detected results are qualified as estimated (J, ND(PQL)J).

Step 2 - Verify by reviewing Form VII Pest-1 and Form VII Pest-2, or laboratory equivalents, that the %D between calibration factors is not greater than 15% for the compound(s) being quantitated. If the %D is greater than this criterion, then all associated positive and non-detected results are qualified as estimated (J or ND(PQL)J).

Qualification of PCBs/Pesticides/Herbicides Compounds Based on Initial Calibration Deviations

Sample Results	Initial Calibration %RSD > 20.0%	Continuing Calibration %D > 15% (30% for Low Level Congeners)
Detects	J	J
Non-Detects	ND(PQL)J	ND(PQL)J

F. Blanks

Criteria

1.0 No contaminants should be present in the blank(s).

1.1 For each matrix and each extracted batch, a method blank must be analyzed.

Action

Qualification of sample results due to blank contamination is dependent on the conditions and origin of the blank. No positive sample results are reported unless the concentration of the compound in the sample exceeds five times the amount in the blank. No sample results are corrected by subtracting blank values. Specific qualifications of sample data are as follows:

Step 1 - Review Form IV, or laboratory equivalent, within the data package to ensure that criteria III.D.1.2 is in compliance. If they are not, the laboratory will be contacted by the reviewer for a written explanation.

Step 2 - Review Form I for all blanks within the data package.

Step 3 - When any compound is detected in the sample and the sample concentration is less than five times the concentration detected in the associated blank, the data are qualified as non-detect (ND).

Step 4 - If a compound is found in the blank but not in the sample, then the data are not qualified.

Note: Any difference between the sample analyses and the related blank analyses which involve weights, volumes, or dilution factors, must be taken into account when the 5-times criterion is applied.

The following are examples of how qualifications apply to blank data:

Example 1 (Step 3): When the sample result is greater than the PQL but less than the action level, the sample results are qualified as non-detects. As in the example below, the sample result is less than the blank action level (or 5 x 1); therefore, the sample result is qualified as non-detect.

Factor	5-times
Blank Result	1.0
PQL	0.5
Action Level	5.0
Sample Result	4.0
Qualified Sample Result	ND(4.0)

Example 2 (Step 4): When the sample result is greater than the blank action level, the sample result is not qualified. As in the example below, the sample result is greater than the blank action level and the sample result is not qualified.

Factor	5-times
Blank Result	1.0
PQL	0.5
Action Level	5.0
Sample Result	6.0
Qualified Sample Result	6.0

Example 3 (Step 5): When the sample result is less than the PQL and less than the action level, the sample results are qualified as non-detects at the PQL. As in the example below, the sample result is less than the blank action level (or 5 x 1); therefore, the sample result is qualified as non-detect at the PQL.

Factor	5-times
Blank Result	1.0
PQL	0.5
Action Level	5.0
Sample Result	0.2 J
Qualified Sample Result	ND(0.5)

Step 6 - When excessive amounts of contamination exist (i.e., saturated peaks by ECD), all compounds affected are qualified as unusable (R).

G. Surrogate Recovery

Criteria

Sample and blank surrogate recoveries (TCMX and DCB for PCB/pesticides, 2,4-DB and DCAA for herbicides, or 2,2',3,3',4,4',5,6,6' – Nonachlorobipheny for the congener-specific Green Bay method) must be within the control limits listed in Table 5 of the FSP/QAPP.

Action

Qualification of the data due to surrogate recoveries being out of control is based on the evaluation of all data provided in the data package, especially considering the complexity of the effect of sample matrices. These qualifications are completed in the following steps:

Step 1 - Surrogate recoveries tabulated on Form II, or laboratory equivalent, for each fraction are evaluated against the control limits provided in Table 5 of the FSP/QAPP.

Note: Steps 2 through 5 apply to pesticides and Aroclor PCBs only. When using dual-column analysis, the surrogate recoveries from both the primary analytical column and secondary column are evaluated for usability.

Step 2 - If recovery of either TCMX or DCB (or both) on either column is less than the lower control limit, all positive results are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) reanalyzing the existing sample;; or (iii) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database.

Step 3 - If either TCMX or DCB recovery (or both) on either column is less than the lower control limit but greater than 10%, all non-detected results are qualified as estimated (ND(PQL)J).

Step 4 - In either TCMX or DCB recovery (or both) on either column is less than 10%, the non-detected results are qualified as unusable (R).

Step 5 - If either TCMX or DCB recovery (or both) on either column is greater than the upper control limit, all positive results are qualified as estimated (J).

Step 6 - If the surrogate recovery for herbicides or congener-specific PCBs (using the Green Bay method) is less than the lower limit, all positive results are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) re-analyzing the existing sample; or (iii) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database.

Step 7 - If the surrogate recovery for herbicides or congener-specific PCBs (using the Green Bay method) is less than the lower limit and greater than 10%, all non-detected results are qualified as estimated (ND(PQL)J).

Step 8 - In the case where the surrogate recovery for herbicides or congener-specific PCBs (using the Green Bay method) is less than 10%, the data are qualified as unusable (R).

Step 9 - If the surrogate recovery for herbicides or congener-specific PCBs (using the Green Bay method) is greater than the upper control limit all positive results are qualified as estimated (J).

Qualification of Compounds Based on Surrogate Recovery Deviations

Sample Results	Recovery < 10%	10% ≤ %Recovery < LL	Lower QC Limit ≤ Recovery ≤ UL	Recovery > UL
Detects	J	J	-	J
Non-Detects	R	ND(PQL)J	-	-

LL- Lower limit of method QC acceptance criteria.

UL- Upper limit of method QC acceptance criteria.

H. Matrix Spike (MS)/Matrix Spike Duplicate (MSD)

Criteria

1.0 Spike recoveries must be within the control limits in Table 5 of the FSP/QAPP.

1.1 The RPD values between MS and MSD recoveries must be within the control limits specified in Table 5.

Action

If recovery results are not within the control limits, the following steps are taken to qualify the data:

Step 1 - If the recovery results are greater than the lower control limits presented in Table 5, the positive results for the compound are qualified as estimated (J)

Step 2 - If the recovery result is less than the lower control limit presented in Table 5, the positive and non-detected results for the compound are qualified as estimated (J, ND(PQL)J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) re-analyzing the existing sample; or (iii) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database.

Step 3 - If the recovery result is less than 10%, the non-detects for that compound in the unspiked sample are qualified as rejected (R). This is the only instance that a non-detect is qualified due to recovery results being out of control.

Step 4 - If any of the RPD values are greater than the limits presented in Table 5, positive results for that compound are qualified as estimated (J) in the unspiked sample.

Qualification of Compounds Based on MS/MSD Recovery and MS/MSD RPD Deviations

Sample Results	Recovery < 10%	10% ≤ %Recovery < Lower QC Limit	Lower QC Limit ≤ Recovery ≤ Upper QC Limit	Recovery > Upper QC Limit	RPD > QC Limit
Detects	J	J	-	J	J
Non-Detects	R	ND(PQL)J	-	-	ND(PQL)J

I. Field Duplicates

Criteria

1.0 For water matrices, each compound with a detectable concentration two times greater than the PQL must have an RPD value that is less than 30%.

1.1 For soil matrices, each compound with a detectable concentration two times greater than the PQL must have an RPD value that is less than 50%.

Action

Step 1 - Calculate all RPD values for positive results between the sample and the field duplicate.

$$\text{Calculation:} \quad RPD = \frac{\text{Sample Result - Field Duplicate}}{\text{(Sample Result + Field Duplicate)/2}} \times 100$$

Step 2 - If the RPD value is greater than 30% in a water matrix and both sample results are greater than two times the PQL, the result for that compound in both samples is qualified as estimated (J).

Step 3 - If the RPD value is greater than 50% in a soil matrix and both sample results are greater than two times the PQL, the result for that compound in both samples is qualified as estimated (J).

Step 4 - If the both sample results are less than two times the PQL, qualification of the sample data is not required.

Step 5 - If the one sample result is less than two times the PQL and the other is greater than two times the PQL, the result for that compound in both samples is qualified as estimated (J).

Qualification Data Based on Field Duplicate RPD Deviations

RPD	**Aqueous > 30% Non-Aqueous > 50%**	**Aqueous > 30% Non-Aqueous > 50%**	**Aqueous > 30% Non-Aqueous > 50%**
Sample Results	Both duplicate sample concs. ≥ 2 times PQL	PQL ≤ both duplicate samples concs. < 2 times PQL and ≥ PQL	One sample conc. ≥ 2 times PQL and other sample conc. < 2 times PQL
Detects	J	-	J
Non-Detects	-	-	ND(PQL)J

J. Internal Standards Performance (for congener-specific Green Bay method only)

Criteria

1.0 Internal standard (IS) area counts must not vary by more than ±50% from the associated continuing calibration standard.

Action

Step 1 - Review the tabulated results for the comparison of the IS areas of the samples and the related continuing calibration standard on Form VIII, or laboratory equivalent. If an IS area is outside the ±50% limits, the positive sample results quantitated using that IS are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) re-analyzing the existing sample; or (iii) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database.

Step 2 - If the IS areas of a sample and the related continuing calibration standard on Form VIII, or laboratory equivalent, are less than the 50% criterion but greater than -20%, then non-detected sample results are qualified as estimated (ND(PQL)J).

Step 3 - If the IS areas of a sample and the related continuing calibration standard on Form VIII, or laboratory equivalent, are less than 20%, then non-detected sample results are qualified as unusable (R).

Step 4 - If the IS areas of a sample and the related continuing calibration standard on Form VIII, or laboratory equivalent, are greater than the 150% criterion, then detected sample results are qualified as estimated (J) for that sample fraction.

Step 5 - Review the tabulated results for comparison of the IS Retention Time (RT) of the samples and the related continuing calibration standard on Form VIII, or laboratory equivalent. If an IS retention time varies by more than 30 seconds, the data are qualified as unusable (R).

Qualification of Congeners Based on Internal Standard Deviations

Sample Results	Area Counts < 20% of the associated calibration	20% ≤ Area Counts < LL	LL ≤ Area Counts ≤ LL	Area Counts > UL
Detects	J	J	-	J
Non-Detects	R	ND(PQL)J	-	-

LL - Lower limit of method QC acceptance criteria.

UL - Upper limit of method QC acceptance criteria.

V. Tier III Validation Procedures

Tier III validation of a data package consists of the steps mentioned above for a Tier I and Tier II validation plus review of the "raw data" and recalculation of approximately 10% of the sample results. The compound identification, instrument performance, quantitation, and detection limits are also evaluated.

A. Compound Quantitation and Reported Quantitation Limits

Criteria

The quantitation of detected compounds and the adjustment of the PQL for dilutions and percent solids, must be recalculated for 10% of the data.

Action

Step 1 - If the criteria above have not been followed, the laboratory will be contacted by the reviewer and the laboratory will be responsible for a correction of the quantitation and resubmission of the reported data.

Step 2 - Quantitation limits affected by large, off-scale peaks are qualified as unusable (R).

Step 3 - If the interference is on-scale, the quantitation limit is qualified as estimated (J).

B. Instrument Performance

Criteria

The laboratory must report retention time window data on the pesticide/PCBs standards summary (Form X Pest-1 or Form X Pest-2) or laboratory equivalent for each GC column used to analyze samples. Compounds must be within these retention time windows.

Action

Retention time windows are used in qualitative identification. If the sample results are not within the retention time windows, the following steps are taken to evaluate the data:

Step 1 - The chromatogram is reviewed to see if there are any peaks within an expanded window surrounding the expected retention time window of the compound of interest.

Step 2 - If there are no peaks present either within or close to the retention time window of the out of control targeted compound, then there is no qualification of the data. Non-detected results are considered valid.

Step 3 - If there are peaks present above or close to the PQL and either within or close to the retention time window of the out of control targeted compound, all positive data are qualified as unusable (R).

C. Compound Identification

Criteria

Reported compounds must be within calculated retention time windows for both chromatographic columns.

Action

The following steps are taken during the compound identification:

Step 1 - When the qualitative criteria for two-column confirmation are not met, all reported positive detects are reported as non-detects. The reviewer uses professional judgment and the following steps to report the appropriate quantitation limit:

a. If the misidentified peak was sufficiently outside the target compound retention time window, then the PQL is reported.

b. If the misidentified peak poses an interference with potential detection of a target peak, the reported value is qualified as the estimated (J) quantitation limit.

Step 2 - When PCBs or multi-peak pesticides exhibit marginal pattern-matching quality, the reviewer's professional judgment is used to confirm whether the differences are credited to environmental "weathering." If the presence of a PCB/multi-peak pesticide is strongly suggested, results are reported as being present.

Step 3 - When an observed pattern closely matches more than one Aroclor, professional judgment is used to decide whether the neighboring Aroclor is a better match or if multiple Aroclors are present.

Validation Annex C

Data Validation Procedures for Inorganic Analytes

Data Validation Procedures for Inorganic Analytes

I. Introduction

This Standard Operating Procedure (SOP) describes the data validation procedures for a United States Environmental Protection Agency (EPA) Region I tiered review of the data for inorganic analytes by EPA Methods 5000, 6000, and 9000 series. Data review procedures presented in this SOP were developed from the applicable quality control criteria specified in the following documents:

- EPA Region I, *EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses* (July 1996, revised December 1996) (EPA Region I Guidelines); and

- EPA Region I, *Part IV, Inorganic Data Validation Functional Guidelines* (November 2008) of the EPA Region I Guidelines.

II. EPA Region I Tiered Validation Procedures

All inorganic analytical data will be validated to a Tier I level following the procedures presented in the EPA Region I Guidelines (cited above). The basic Tier I review consists of a completeness evidence audit to ensure that all laboratory data and documentation are present. Additionally, for projects subject to this FSP/QAPP, the Tier I review will be modified and expanded to include a number of elements of Tier II review, including review of each sample delivery group (SDG) to identify data deficiencies that may potentially result in qualification of the data (e.g., systematic deviations such as low calibration response factors.) Based on this modified Tier I review, a subset of the data will be identified for additional Tier II review. If QA/QC deviations are identified during the modified Tier I review, those deviations will be addressed in the Tier II review. Otherwise, a minimum of 25% of the data will be chosen at random to be subjected to a Tier II review, which will consist of the Tier I completeness evidence audit and review of all data package summary forms for identification of QA/QC parameter deviations. The Tier II data review will be used to identify and evaluate systematic QA/QC deficiencies that may affect any or all of the sample data presented in a specific data package. The Tier II data validation also includes an evaluation of field duplicate Relative Percent Difference (RPD) compliance. Additional Tier II review and Tier III (recalculation of sample results) review may also be performed for a larger portion of the data set, if required, to fully resolve data usability limitations identified during the modified Tier I data review and initial Tier II review for 25% of the data chosen at random.

The tiered data validation procedures consisting of modified Tier I review for all data, Tier II review of a minimum of 25% of the data, and additional Tier II and Tier III review, as required, will be used to evaluate compliance of each data set with the project-specific data quality objectives. The procedures presented in the following sections will be used to perform the Tier I, Tier II, and Tier III data validation reviews.

Qualification of analytical data will also be performed, if required, as specified in the data validation protocols presented below.

III. Tier I Validation Procedures

Tier I validation of a data package consists of verifying that all raw data and forms are included and complete. A data validation summary spreadsheet (in the form presented in Attachment C-1) is prepared to document the data review. The following steps are taken to complete a Tier I validation:

Step 1 - Review the laboratory case narrative. During review, if there are any deviations that warrant a more extensive validation procedure, a Tier II review would be initiated to evaluate potential data use limitations.

Step 2 - Compare the chain-of-custody and the sample traffic reports. If there are any inconsistencies or if they are incomplete, then contact the laboratory for resolution.

Step 3 - Verify that all forms presented are present and complete. If any of the required forms are not in the data package, contact the laboratory for a resubmission.

Note: If frequent or severe quality control deviations are present on the above-mentioned forms, a more extensive validation procedure may be warranted. Based on the reviewer's judgment, Tier II or Tier III review may be conducted to fully evaluate the usability of the data.

Step 4 - Verify that the following raw data is provided for each sample and associated QA/QC samples in the data package. Contact the laboratory to obtain missing data (if required):

- Case Narrative
- Chain-of-Custody Forms
- Traffic Reports
- QA Sample Summary Forms
- Instrument Calibration Summary Forms
- Instrument Run Logs
- Sample Preparation Logs
- Instrument/Method Detection Limits

- Standards Preparation Logs
- Supporting (raw) Data

Step 5 - With a blue ink pen, record on the first page of the data package: the validation level, date, and reviewer's initials.

In addition to the steps discussed above, the Tier I review of data packages for projects subject to this FSP/QAPP will be expanded to include some elements of Tier II review, including review of the data packages to identify QA/QC deficiencies that may require qualification of the data.

IV. Tier II Validation Procedures

Tier II validation of a data package consists of the steps mentioned above for a Tier I review, plus review of the data package summary forms for identification of QA/QC deviations. Tier II validation does not include review of the "raw data" or recalculation of sample results. Sample qualification is performed (if required) following the EPA Region I Guidelines.

A. Data Qualifiers

All data qualified due to QA/QC deviations will be clearly recorded on the data summary package Form I, or laboratory equivalent, with a blue ink pen. The laboratory qualification is lined out and the reviewer's qualification placed next to it. The date and the initials of the reviewer will also be placed on Form I. Below is a list of qualifiers that may be used.

J The compound was positively identified, but the associated numerical value is an estimated concentration. This qualifier is used when the data evaluation procedure identifies a deficiency in the data generation process. This qualifier is also used when a compound or analyte is detected at estimated concentrations less than the practical quantitation limit (PQL). (When this qualifier is used in combination with the letter C -- i.e., JC -- that indicates that the sample result is an estimated concentration due to certain QC deficiencies and that a bias-corrected result is available, as discussed further below.)

ND The compound was analyzed for, but was not detected at the method detection limit. The sample PQL (which is normally the same as the reporting limit [RL]) is presented in parentheses and adjusted for dilution and (for solid samples only) percent moisture. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, non-detected sample results are displayed as ND(PQL). (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier U for non-detected compounds.)

ND J The compound was analyzed for and not detected, but the sample PQL (presented in parentheses and normally the same as the RL) is estimated and may or may not represented the actual level of quantitation. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, these non-detected sample results are displayed as ND(PQL)J. (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier UJ for non-detected compounds in this category.)

R Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data should not be used for any qualitative or quantitative purposes.

B. Holding Times

Criteria

The holding times presented in Table 1 of the FSP/QAPP for the inorganic analysis must not be exceeded.

Action

The following steps are performed to review holding times for Tier II validation:

Step 1 - Establish the holding time by comparing the sampling date on the chain-of-custody with the dates of analysis and/or digestion on Form I. The chain-of-custody is also reviewed to determine if the samples were properly preserved.

Step 2 - If the holding times are exceeded by less than 24 hours, no qualification of data is needed.

Step 3 - If the holding times are exceeded by more than 24 hours but less than 14 days, all positive results are qualified as estimated (J) and the non-detected compounds are qualified as estimated (ND(PQL)J).

Step 4 - If the holding times are exceeded by more than twice the specified holding time, all associated results are qualified as unusable (R).

C. Percent Moisture Content

Criteria

Soil/sediment/solid sample results must be adjusted for percent solids and must have percent solids greater than 30%.

Action

The following steps are performed by reviewing the sample result summary form during the validation of percent solids data:

Verify that the percent solids of soil/sediment/solid samples are greater than 30%.

a. Soil/sediment/solid sample results with a percent solid of less than 10% are qualified as unusable (R)

b. Positive and non-detected soil/sediment/solid sample results with percent solid results within the range of greater than 10% to less than 30% are qualified as estimated (J) and unusable (R), respectively.

D. Calibration

Criteria

1.0 Instruments must be calibrated daily and each time the instrument is set up for analysis.

1.1 Initial Calibration ICP/ICP-MS

A blank and at least one standard must be used in establishing the analytical curve.

1.2 Initial Calibration Atomic Absorption Analysis

A blank and at least three standards must be used in establishing the analytical curve.

1.3 Initial Calibration-Mercury

A blank and at least four standards must be used in establishing the analytical curve.

1.4 Initial Calibration-Cyanide

1.4.1 A blank and at least three standards must be used in establishing the analytical curve.

1.4.2 At least one mid-point standard must be distilled before analysis.

1.5 Initial and Continuing Calibration Verification (ICV and CCV)

1.5.1 A certified standard must be used for the initial Calibration Verification (ICV) and must be analyzed for each wavelength used for analysis.

1.5.2 All percent recoveries of the ICVs and CCVs for all the analytes must be within 90 to 110%, except for mercury and cyanide.

1.5.3 All percent recoveries of all the ICVs and CCVs for mercury must be within 80 to 120%.

1.5.4 All percent recoveries of all the ICVs and CCVs for cyanide must be within 85 to 115%.

1.5.5 A CCV must be analyzed every 10 samples or every 2 hours, whichever is more frequent.

1.5.6 To verify linearity near the contract required detection limit (CRDL) for ICP/ICP-MS analysis, a standard with a concentration that is two times the CRDL or two times the IDL (whichever is greater) must be analyzed. The recoveries for the CRDL standards must be within the limits of 70 to 130% (except for antimony (Sb), lead (Pb), and thallium (Tl), for which recovery must be within the limits of 50 to 150%).

Action

The following steps are performed to review inorganic calibration for Tier II validation:

Step 1 - Verify that the instrument was calibrated daily and every time it was set up by reviewing Form XIV, or laboratory equivalent. Also, verify that the correct number of standards were used for the initial calibration for each analyte reported. If any of these are not completed by the laboratory, the data are qualified as unusable (R).

Step 2 - Verify that a mid-range standard was distilled by reviewing Form XIII, or laboratory equivalent. If a mid-range standard for cyanide was not distilled or did not meet the 85 to 115% criterion, all positive and non-detected results are qualified as estimated (J) and (ND(PQL)J), respectively.

Step 3 - Review Form II (Part 1), or laboratory equivalent, for the identification of the source of the ICV and CCV. If they are not from different sources, all positive and non-detected results are qualified as estimated (J) and (ND(PQL)J), respectively.

Step 4 - ICV and CCV percent recovery Form II (Part 1), or laboratory equivalent, are reviewed against the above mentioned criteria. If the ICV or CCV percent recoveries are outside the acceptance criteria, the following steps are taken to qualify the data:

a. If the ICV and CCV percent recoveries are not within the control limits but are within the ranges of 75-89%, or 111-125% (CN, 70-84% or 116-130%; Hg, 65-79% or 121-135%), all results greater than the IDL are qualified as estimated (J).

b. If the ICV and CCV percent recoveries are not within the control limits but are within the ranges of 111-125 % (CN, 116-130%; Hg, (121-135%), all non-detected results are not qualified.

c. If the ICV and CCV percent recovery are not within the control limits, but are within the ranges of 75 to 89% (CN, 70 to 84%; Hg, 65 to 79%), all non-detected results are qualified as estimated (ND(PQL)J).

d. If the ICV and CCV percent recoveries are not within the control limit ranges of 75 to 89% (CN, 70 to 84%; Hg, 65 to 79%), all non-detected results are qualified as unusable (R).

Step 5 - Form XIV, or laboratory equivalent, is reviewed to verify that the CCVs were analyzed in the required intervals. If they were not analyzed at the required intervals, all positive and non-detected results are qualified as estimated (J) and (ND(PQL)J), respectively.

Step 6 - Form II (Part 2), or laboratory equivalent, is reviewed to verify that the CRDL standards are within the required control limits of +/-20% of the true value. If the CRDL standard for ICP/ICP-MS is not within +/-20% of the true value, positive results less than 3 times the CRDL and non-detects are qualified as estimated (J) and (ND(PQL)J), respectively.

E. Blanks

Criteria

1.0 No contaminants should be present in the blank(s).

1.1 For each matrix, for every 20 samples digested, or for each batch digested, a preparation blank must be analyzed.

1.2 A calibration blank must be analyzed after every 10 samples or every 2 hours, whichever is more frequent.

Action

Qualification of sample results due to blank contamination is dependent on the conditions and origin of the blank. No positive sample results are reported unless the concentration of the compound in the sample exceeds five times the amount in the blank. No sample results are corrected by subtracting blank values. Specific qualifications of sample data are as follows:

Step 1 - Review Form III, or laboratory equivalent, for all blanks within the data package.

Step 2 - If a blank result if greater than two times the negative IDL, all non-detects are qualified as estimated (ND(PQL)J).

Step 3 - If an analyte is found in the blank but not in the sample, then the data are not qualified.

Step 4 - When an analyte is detected in the sample and the sample concentration is less than five times the concentration detected in the associated blank, the data are qualified as non-detected (ND).

Step 5 - When a positive result is greater than the action level, the result is not qualified.

Note: Any difference between the sample analyses and the related blank analyses which involve weights, volumes, or dilution factors, must be taken into account when the 5-times criterion is applied.

The following are examples of how qualifications apply to blank data:

Example 1 (Step 4): When the sample result is less than the IDL but greater than the action level, positive results less than the action level are qualified as non-detect.

Factor	5-times
Blank Result	7
PQL	5
Action Level	35
Sample Result	22
Qualified Sample Result	ND(22)

Example 2 (Step 5): When the sample result is greater than the IDL and the action level, no qualification is used.

Factor	5-times
Blank Result	10
PQL	8
Action Level	50
Sample Result	70
Qualified Sample Result	70

F. ICP/ICP-MS Interference Check Sample (ICS)

Criteria

1.0 The ICS must be analyzed at the beginning and the end of each sample analysis run or a minimum of twice per 8-hour working shift, whichever is more frequent.

1.1 The percent recovery for the ICS solution AB must be within the control limits of +/- 20% of the true value.

Note: Interferant Element Concentration Used for ICP/ICP-MS Interference Check Sample

Element	Concentration (mg/L)
Al	500
Ca	500
Fe	200
Mg	500

Action

The following steps are performed to review the ICS for Tier II validation:

Step 1 - Review Form XIV, or laboratory equivalent, to ensure the ICS is analyzed at the proper frequency. If the ICS is not analyzed at the correct frequency, detect and non-detected sample results are qualified as estimated (J) and (ND(PQL)J), respectively.

Step 2 - Verify on the ICS recovery Form IV, or laboratory equivalent, that the percent recovery results for the ICS solution AB are within the control limits of 80 to 120%. Also review Form I for concentrations of As, Ca, Mg, and Fe to confirm that they are a minimum of 50% of their respective levels in the ICS. The following steps are taken in reviewing the data:

a. If the ICS recovery for an element is greater than 120% and the reported sample results are non-detect, no qualification of the data is needed.

b. If the ICS recovery for an element is greater than 120% and the reported sample results are greater than the IDL, the affected data are qualified as an estimate (J).

c. If the ICS recovery for an element is between 50 and 79% and the reported results are greater than the IDL, the affected data are qualified as an estimate (J).

d. If the ICS recovery for an element is between 50 and 79% and the reported results are non-detected, the affected data are qualified as an estimate (ND(PQL)J).

e. If the ICS recovery for an element is less than 50%, the sample results are qualified as unusable (R).

Step 3 - When sample results greater than the IDL are reported for elements which are not present in the ICS solution, there is the possibility of false positives. Sample results greater than two times the IDL with levels of interferents that are 50% or more of the levels found in the ICS solution are qualified as estimated (J).

Step 4 - When negative sample results with an absolute value greater than two times the IDL are reported for elements which are not present in the ICS solution, there is the possibility of false negatives. When the levels of interferents for these samples are 50% or more of the levels found in the ICS solution, the sample results are qualified as estimated (ND(PQL)J).

G. Matrix Spike (MS) Sample Analysis

Criteria

1.0 Samples identified as field blanks cannot be used for spiked sample analysis.

1.1 Spike recoveries must be within the control limits of 75 to 125%. However, the control limits do not apply when the sample concentration surpasses the spike concentration by a factor of four or more.

1.2 If the MS recovery does not meet criteria, a post-digestion spike is required and reported on Form 5B, or laboratory equivalent, for ICP/ICP-MS, Mercury, and Cyanide. Post-digestion spikes are also required for all furnace analyses, but recoveries are reported on the raw data and are reviewed in a Tier III evaluation.

Action

The following steps are performed to review inorganic MS analysis for Tier II validation:

Step 1 - MS recoveries are reviewed on Form V (Part 1), or laboratory equivalent. If they are out of the control limits of 75 to 125% the following steps are taken:

a. When the spike recovery is greater than 125% and the reported sample results are non-detected, no qualification of data is needed.

b. When the spike recovery is greater than 125% and the reported sample results are greater than the IDL, the data are qualified as estimated (J).

c. When the spike recovery is less than 75% and the reported sample results are greater than the IDL, detected results are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) reanalyzing the existing sample; or (iii) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database.

d. If the spike recovery is within the range of 30 to 74% and the sample results are non-detected, the data are qualified as estimated (ND(PQL)J).

e. If the spike recovery is less than 30% and the sample results are non-detected, the data are qualified as unusable (R).

H. Duplicate Sample Analysis

Criteria

1.0 Samples identified as field blanks cannot be used for duplicate sample analysis.

1.1 Control limit of $\leq$ 20% for waters and $\leq$ 35% for soils for the RPD are used for sample results greater than five times the PQL as presented in Table 5 of the FSP/QAPP.

1.2 Control limit of RPD or Absolute Difference ≤ the PQL for waters and Absolute Difference ≤ 2 times the PQL for soils are used for sample values less than five times the PQL, including when only one sample value is greater than five times the PQL or when one sample is above the IDL and one is non-detected.

1.3 Duplicate sample analysis must be prepared and analyzed for every 20 samples, for every batch digested, or for every matrix, whichever is more frequent.

Action

Verify on Form V (Part 2), or laboratory equivalent, that the RPD for the duplicate samples analysis is within the above mentioned criteria. If duplicate analysis results are outside the appropriate control windows, all sample results greater than the IDL for that analyte and the same matrix are qualified as estimated (J).

I. Field Duplicates

Criteria

1.0 For sample values greater than 5 times the PQL, control limits for the RPD for water matrices is ≤ 30% and ≤ 50% for soils matrices.

1.1 For sample values less than 5 times the PQL, the control limits of Absolute Difference≤ 2 times the PQL for waters and Absolute Difference ≤ 4 times the PQL for soils will be used.

Action

Step 1 - Calculate all the RPD values for positive results between the sample and the field duplicate.

$$\text{Calculation:} \quad RPD = \frac{\text{Sample Result - Field Duplicate}}{(\text{Sample Result + Field Duplicate})/2} \times 100$$

Step 2 - If duplicate analysis results are outside the appropriate control limits, all sample results greater than the IDL for that analyte and the same matrix are qualified as estimated (J).

J. Laboratory Control Sample Analysis (LCS)

Criteria

1.0 Aqueous LCS results must fall within the control limits of 80 to 120%. For validation of the data the +/-20% limit will also apply to both antimony and silver.

1.1 Solid LCS results must fall within the control limits established by the laboratory as presented on Form VII or the laboratory equivalent.

1.2 LCS must be prepared and analyzed for every 20 samples, for every batch digested, or for every matrix, whichever is more frequent.

Action

2.0 The following steps are taken to evaluate the aqueous LCS:

Step 1 - Review the Form VII or the laboratory equivalent for any analyte that is outside the control limits of 80 to 120%.

Step 2 - If the LCS recovery for any analyte is greater than 120%, results greater than the IDL are qualified as estimated (J).

Step 3 - If the LCS recovery for any analyte is less than the lower control limit of 80%, sample results greater than the IDL are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) reanalyzing the existing sample; (iii) bias-correcting the sample result to 100% recovery; or (iv) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database. In the event that the sample result is bias-corrected, the uncorrected result will be further qualified as estimated/bias-corrected result available (JC), and the bias-corrected result will be presented in the notes field of the data validation summary table.

Step 4 - If the sample results are non-detects and the LCS recovery is greater than 120%, no qualification of the data is performed.

Step 5 - If the sample results are non-detected and the LCS recoveries are within the control limits of 50 to 79%, the data are qualified as estimated (ND(PQL)J).

Step 6 - If the LCS recoveries for any analyte are less than 50%, the data for that analyte are qualified as unusable (R).

2.1 The following steps are taken to evaluate the soil LCS:

Step 1 - Review the Form VII, or laboratory equivalent, to identify any analyte that is outside the control limits established by the laboratory.

Step 2 - If any solid LCS recoveries for any analyte are greater than the upper control limit established by the laboratory, all results greater than the IDL are qualified as estimated (J).

Step 3 - If any solid LCS recoveries for any analyte are less than the lower laboratory established control limits, sample results greater than the IDL are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) reanalyzing the existing sample; (iii) bias-correcting the sample result to 100% recovery; or (iv) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database. In the event that the sample result is bias-corrected, the uncorrected result will be further qualified as estimated/bias-corrected result available (JC) and the bias-corrected result will be presented in the "Notes" field of the Analytical Data Validation Summary (Attachment C-2).

Step 4 - If the LCS results are greater than the upper control limits and the sample results are non-detected, no qualification of the data is needed.

Step 5 - If the LCS results are less than the lower control limits and the sample results are non-detected, the data are qualified as estimated (ND(PQL)J).

K. ICP/ICP-MS Serial Dilution Analysis

Criteria

1.0 If the analyte concentration is sufficiently high (concentration in the original sample is at a minimum a factor of 50 times the IDL) the laboratory is required to report the results of a five-fold dilution. Results that do not agree within 10% of the original results are qualified with an "E" by the laboratory. For the purposes of validation the criterion is 15%.

1.1 A serial dilution is required for each matrix analyzed.

1.2 If the sample used for the serial dilution had to be diluted for any elements to bring the result within the linear range of the instrument, another five-fold dilution is required for the evaluation of matrix interferences for that specific element.

Action

The following steps are performed to review ICP/ICP-MS serial dilution for Tier II validation:

Step 1 - Review the ICP/ICP-MS serial dilution results on Form IX or the laboratory equivalent. If the percent difference between the results is greater than 15% and the serial dilution results are greater than the initial sample results, the detected and non-detected results are qualified as estimated (J) and (ND(PQL)J), respectively.

Step 2 - If there is evidence of a negative interference, all positive sample results are qualified as estimated (J).

L. Detection Limits

Criteria

1.1 IDLs must be less than the PQL for all analytes.

1.2 ICP/ICP-MS or other methods may be used that do not have IDLs that are less than the PQLs only if all the sample results are greater than 5 times the IDL for that instrument.

1.3 IDLs must be multiplied by the dilution factors and preparation factors before being reported on Form I, or laboratory equivalent.

Action

The following steps are taken when verifying detection limits for Tier II validation:

Step 1 - On the Form I, or laboratory equivalent, correct any sample results that are not reported to the IDL or do not use the correct dilution/preparation factors.

Step 2 - Any positive or non-detected results for As, Tl, Se, or Pb analyzed by ICP/ICP-MS that are not greater than 5 times the IDL are qualified as estimated (J).

M. ICP/ICP-MS-MS Tuning

Criteria

A mass calibration and resolution parameter check in the mass regions of interest must be performed prior to any samples being analyzed. If the mass calibration differs more than 0.1 amu from the true value, then the mass calibration must be adjusted to the correct value. The resolution must also be verified to be less than 0.9 amu full width at 10 percent peak height.

Action

The following steps are performed to review ICP/ICP-MS-MS tune for Tier II validation:

Step 1 - If the mass calibration falls outside 0.1 amu, the detected and non-detected results are qualified as estimated (J) and (ND(PQL)J), respectively.

Step 2 - If the peak resolution is not less than 0.9 amu at 10 percent of peak height, the detected and non-detected results are qualified as estimated (J) and (ND(PQL)J), respectively.

N. ICP/ICP-MS-MS Internal Standards Performance

Criteria

1.0 Internal standard (IS) area counts must not be less than 30% or greater than 120% from the associated calibration standard.

Action

Step 1 - Review the tabulated results for the comparison of the IS areas of the samples and the related calibration standard on Form XV, or laboratory equivalent. If an IS area is outside the 30% to 120% limits, the laboratory should perform a dilution to obtain internal standard results within the acceptance limits.

Step 2 - If the IS areas of a sample are less than the 30% criterion but greater than 10%, then detected and non-detected sample results are qualified as estimated (J, ND(PQL)J) for that sample fraction.

Step 3 - If the IS areas of a sample are less than 10% of the related calibration standard, then non-detected sample results are qualified as unusable (R) and detected sample results are qualified as estimated (J) for that sample fraction.

Step 4 - If the IS areas of a sample are greater than the 120% criterion, then detected sample results are qualified as estimated (J) for that sample fraction.

Qualification of Metals Analytes Based on Internal Standard Deviations

Sample Results	Area Counts < 10% of the associated calibration	10% ≤ Area Counts < LL	LL ≤ Area Counts ≤ UL	Area Counts > UL
Detects	J	J	-	J
Non-Detects	R	ND(PQL)J	-	-

LL - Lower limit of method QC acceptance criteria.

UL - Upper limit of method QC acceptance criteria.

V. Tier III Validation Procedures

Tier III validation of a data package consists of the steps mentioned above for a Tier I and Tier II validation plus review of the "raw data" and recalculation of approximately 10% of the sample results. Furnace atomic absorption analysis and calibration raw data are also reviewed.

A. Calibration

Criteria

1.0 The initial calibration for atomic absorption analysis must contain three standards, one of which must be at the PQL.

1.1 The correlation coefficient must be greater than or equal to 0.995 for the calibration of atomic absorption, mercury, and cyanide or other photometric determinations.

Action

The following steps are taken when verifying inorganic calibration for Tier III validation:

Step 1 - Review the calibration raw data and Form XIII, or laboratory equivalent, to confirm that the curve for the analysis did include a standard at the PQL. If there is not a standard at the PQL, all positive sample results up to two times the PQL and non-detected results are qualified as estimated (J) and (ND(PQL)J), respectively.

Step 2 - Evaluate the raw data of atomic absorption, mercury, and cyanide or other photometric determination and calculate the correlation coefficient. If the correlation coefficient is less than 0.995, then all results greater than the IDL and non-detects are qualified as estimated (J) and (ND(PQL)J), respectively.

B. Furnace Atomic Absorption

Criteria

1.0 For sample concentrations greater than the PQL, duplicate injections must agree within +/- 20% RSD, or Coefficient of Variation (CV), otherwise the sample must be reanalyzed once (two additional injections).

1.1 Spike recoveries must be within the control limits of 85 to 115%.

1.2 If the post-digestion spike recovery is not within the control limits of 85 to 115% and the sample absorbance is greater than 50% of the spike absorbance, the Method of Standard Additions is required. The sample must be spiked at 50, 100, and 150% of the sample absorbance.

Action

The following steps are taken when reviewing the Furnace Atomic Absorption data:

Step 1 - Review the duplicate injection values for RSD or CV. If they are outside the required criteria specified in Section IV.A.1.0 and the sample was not reanalyzed once as required, all positive results are qualified as estimated (J).

Step 2 - Review the spike recoveries. If they are outside the required criteria mentioned in section IV.A.1.1, all positive results are qualified as estimated (J).

Step 3 - Review the sample absorbance of the post-digestion spike and if the spike absorbance is greater than 50% the data are qualified as follows:

a. If the furnace post-digestion spike recovery is not within 85 to 115% and the sample result is greater than the IDL, then the data are qualified as estimated (J).

b. If the sample result is non-detected and the furnace post-digestion spike recovery is greater than 10% but less than 85%, then the data are qualified as estimated (ND(PQL)J).

c. If the furnace post-digestion spike recovery is less than 10%, then positive and non-detected results are qualified as unusable (R).

Step 4 - If the Method of Standard Additions (MSA) is required, but was not performed, then the positive sample results are qualified as estimated (J).

Step 5 - If any samples analyzed by MSA were not spiked at the correct levels, then the positive sample results are qualified as estimated (J).

Step 6 - If the MSA correlation coefficient is less than 0.995, then the positive sample results are qualified as estimated (J).

C. Sample Result Verification

Criteria

The quantitation of the analytes and the adjustment of the PQL for dilution and percent solids, must be recalculated for 10% of the data.

Action

If the criteria above have not been followed, then the laboratory will be contacted by the reviewer and the laboratory will be responsible for resolving any discrepancies and resubmission of results, if needed.

ARCADIS

Validation Annex D

Data Validation Procedures for Polychlorinated Dibenzo-p-Dioxins (PCDDs)/Polychlorinated Dibenzofurans (PCDFs)

Data Validation Procedures for Polychlorinated Dibenzo-p-Dioxins (PCDDs)/Polychlorinated Dibenzofurans (PCDFs)

I. Introduction

This standard operating procedure (SOP) describes the data validation procedures for an EPA Region I tiered review of the data for polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) analyzed by EPA Method 8280 or 8290. Data review procedures presented in this SOP are from the applicable quality control criteria specified in the following documents:

- EPA Region I, *EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses* (July 1996, revised December 1996) (EPA Region I Guidelines);

- EPA, *The Analysis of Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans by High Resolution Gas Chromatography/High Resolution Mass Spectrometry (HRGC/HRMS),* EPA Method 8290;

- *National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review* (September 2011); and

- EPA Contract Laboratory Program, *Statement of Work for the Analysis of Analysis of Chlorinated Dibenzo-P-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs)*, Revision DLM02.2 (December 2009).

II. EPA Region I Tiered Validation Procedures

All PCDD/PCDF analytical data will be validated to a Tier I level following the procedures presented in the EPA Region I Guidelines (cited above). The basic Tier I review consists of a completeness evidence audit to ensure that all laboratory data and documentation are present. Additionally, for projects subject to this QAPP, the Tier I review will be modified and expanded to include a number of elements of Tier II review, including review of each sample delivery group (SDG) to identify data deficiencies that may potentially result in qualification of the data (e.g., systematic deviations such as low calibration response factors.) Based on this modified Tier I review, a subset of the data will be identified for additional Tier II review. If QA/QC deviations are identified during the modified Tier I review, those deviations will be addressed in the Tier II review. Otherwise, a minimum of 25% of the data will be chosen at random to be subjected to a Tier II review, which will consist of the Tier I completeness evidence audit and review of all data package summary forms for identification of QA/QC parameter deviations. The Tier II data review will be used to identify and evaluate systematic QA/QC deficiencies that may affect any or all of the sample data presented in a specific data package. The Tier II data validation also includes an evaluation of field duplicate Relative Percent Difference (RPD) compliance. Additional Tier II review and Tier III (recalculation of sample results) review may also be performed for a larger portion of the data set, if required, to fully resolve data usability limitations identified during the modified Tier I data review and initial Tier II review for 25% of the data chosen at random.

The tiered data validation procedures consisting of modified Tier I review for all data, Tier II review of 25% of the data, and additional Tier II and Tier III review, as required, will be used to evaluate compliance of each data set with the project-specific data quality objectives. The procedures presented in the following sections will be used to perform the Tier I, Tier II, and Tier III data validation reviews. Qualification of analytical data will also be performed, if required, as specified in the data validation protocols presented below.

III. Tier I Validation Procedures

Tier I validation of a data package consists of verifying that all raw data and forms are included and complete. A data validation summary spreadsheet (in the form presented in Attachment D-1) is prepared to document the data review. The following steps are taken to complete a Tier I validation:

Step 1 - Review the laboratory case narrative. During review of the case narrative, if any deviations warrant a more extensive validation procedure, a Tier II review would be initiated to evaluate potential data use limitations.

Step 2 - Compare the chain-of-custody and the sample traffic reports. If there are any inconsistencies or if they are incomplete, then contact the laboratory for resolution.

Step 3 - Verify that all forms are present and complete. If any of the forms are not in the data package contact the laboratory for a resubmission.

Note: If frequent or severe quality control deviations are present on the above-mentioned forms, a more extensive validation procedure may be warranted. Based on the reviewer's judgment, Tier II or Tier III review may be warranted to fully evaluate the usability of the data.

Step 4 - Verify that the following raw data is provided for each sample and associated QA/QC samples in the data package. Contact the laboratory to obtain missing data:

- Case Narrative
- Chain-of-Custody Forms
- Traffic Reports
- QA Sample Summary Forms
- Instrument Calibration Summary Forms
- Instrument Run Logs
- Sample Preparation Logs
- Instrument/Method Detection Limits

- Standards Preparation Logs
- Supporting (raw) Data

Step 5 - With a blue ink pen, record on the first page of the data package: the validation level, date, and reviewer's initials.

In addition to these steps, as discussed above, the Tier I review of data packages for projects subject to this QAPP will be expanded to include some elements of Tier II review, including review of the data packages to identify QA/QC deficiencies that may require qualification of the data.

IV. Tier II Validation Procedures

Tier II validation of a data package consists of the steps mentioned above for a Tier I review plus review of the data package for identification of QA/QC deviations. Tier II validation does not include review of the "raw data" or recalculation of sample results. Sample qualification is performed (if required) following the EPA Region I Guidelines.

A. Data Qualifiers

All data qualified due to QA/QC deviations will be clearly marked on a copy of Form I's, or laboratory equivalent, with a blue ink pen. The laboratory qualification is lined out and the reviewer's qualification placed next to it. The date and the initials of the reviewer will also be placed on Form I. Below is a list of qualifiers to be used.

J The compound or analyte was positively identified, but the associated numerical value is an estimated concentration. This qualifier is used when the data evaluation procedure identifies a deficiency in the data generation process. This qualifier is also used when a compound or analyte is detected at estimated concentrations less than the practical quantitation limit (PQL). (When this qualifier is used in combination with the letter C -- i.e., JC -- that indicates that the sample result is an estimated concentration due to certain QC deficiencies and that a bias-corrected result is available, as discussed further below.)

ND The compound was analyzed for, but was not detected at the method detection limit. The sample PQL (which is normally the same as the reporting limit [RL]) is presented in parentheses and adjusted for dilution and (for solid samples only) percent moisture. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, non-detected sample results are displayed as ND(PQL). (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier U for non-detected compounds.)

ND J The compound was analyzed for and not detected, but the sample PQL (presented in parentheses and normally the same as the RL) is estimated and may or may not represented the actual level of quantitation. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, these non-detected sample results are displayed as ND(PQL)J. (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier UJ for non-detected compounds in this category.)

R Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data should not be used for any qualitative or quantitative purposes.

B The compound or analyte was positively identified in the sample as well as in the associated blank sample. The detected sample concentration may be due in part or whole to contamination that occurred during sample handling and preparation.

B. Holding Times

Criteria

Samples (waters or soils) and extracts must be preserved at 4° centigrade. Specific holding times for each analysis and sample type are presented in Table 8-2 of the QAPP.

Action

The following steps are performed for the validation of data due to holding times:

Step 1 - Establish the holding time by comparing the sampling date on the chain-of-custody form with the dates of analysis and/or extraction on Form I. The chain-of-custody form is also reviewed to determine if the samples were properly preserved.

Step 2 - If the holding times are exceeded by less than 24 hours, then no qualification of data is needed.

Step 3 - If the holding times are exceeded by more than 24 hours but less than 14 days, all detected results are qualified as estimated (J) and the non-detected compounds are qualified as estimated (ND(PQL)J).

Step 4 - If the holding times are exceeded by more than twice the specified holding time, then all the results are qualified as unusable (R).

C. Percent Moisture Content

Criteria

Soil/sediment/solid sample results must be adjusted for percent solids, and must have percent solids greater than 30%.

Action

The following steps are performed by reviewing the sample result summary form during the validation of percent solids data:

Verify that the percent solids of soil/sediment/solid samples are greater than 30%.

a. Soil/sediment/solid sample results with a percent solids of less than 10% are qualified as unusable (R).

b. Detected and non-detected soil/sediment/solid sample results with percent solids within the range of greater than 10% to less than 30% are qualified as estimated (J) and unusable (R), respectively.

D. Window Defining Mix (WDM)

Criteria

The WDM must be analyzed at the following frequency:

1.0 Before an initial calibration on each instrument and GC column used for analysis.

1.1 Each time adjustments or instrument maintenance activities are performed that may affect retention times.

1.2 Any time retention times of either the $^{13}C_{12}$-1234-TCDD or $^{13}C_{12}$-123789-HxCDD recovery standards in any analysis vary by more than 10 seconds from its retention time in the most recent continuing calibration standard.

Action

The following steps are performed to review WDM for Tier II validation:

Step 1 - Review Form V PCDD-3, or laboratory equivalent, and verify the WDM was analyzed at the correct frequency.

Step 2 - If the WDM was not analyzed at the mandated frequency, yet the calibration standards meet the specifications, the data are not qualified. If the initial and continuing calibration meet the specified criteria, it is assumed that this deviation has not affected the data.

E. Chromatographic Resolution

Criteria

The resolution criteria must be evaluated using measurements made on the Selected Ion Current Profile (SICP) for the appropriate ions for each isomer.

1.0 For analyses on a DB-5 (or equivalent) GC column, the chromatographic resolution is evaluated by the analysis of the CC3 standard during both the initial and the continuing calibration procedures.

1.1 The isomers $^{13}C_{12}$-2378-TCDD and $^{13}C_{12}$-1234-TCDD chromatographic peak separation must be resolved with a valley less than or equal to 25%.

1.2 The isomers 123478-HxCDD and 123678-HxCDD chromatographic peak separation must be resolved with a valley less than or equal to 50%.

1.3 For analyses on an SP-2331 (or equivalent) GC column, the chromatographic resolution is evaluated before the analysis of any calibration standards by the analysis of a commercially available standard.

1.4 The isomers 1478-TCDD and 2378-TCDD chromatographic peak separation must be resolved with a valley less than or equal to 25%.

1.5 The isomers 2378-TCDD and (1237/1238)-TCDD chromatographic peak separation must be resolved with a valley less than or equal to 25%.

Action

The following steps are performed in evaluating chromatographic resolution for Tier II validation:

Step 1 - Review Form V PCDD-2, or laboratory equivalent, to verify that the percent valley criterion has been met.

Step 2 - If the resolution criteria for TCDD are not met, all positive results for Tetras, Pentas, and Hexas (both dioxin and furan) are qualified as estimated (J). No qualification is needed for non-detected results.

Step 3 - If the resolution criteria for HxCDD are not met, all positive results for Hexas (both dioxin and furan) are qualified as estimated (J). No qualification is needed for non-detected results.

F. GC/MS Initial Calibration

Criteria

1.0 Before any sample analysis is conducted, a five-point calibration must be performed.

1.1 All PCDD/PCDF peaks, including the labeled internal and recovery standards, in all solutions must meet the +/- 15% theoretical abundance ratio criterion, listed on Form VI PCDD-2, or laboratory equivalent.

1.2 The percent Relative Standard deviation (%RSD) calculated from the five Relative Response Factors (RRFs) for the unlabeled and labeled PCDDs/PCDFs must not be greater than 15%.

Action

The following steps are performed in evaluating the initial calibration for Tier II validation:

Step 1 - Review Form VI PCDD-1 and Form VI PCDD-2, or laboratory equivalents, to verify that the initial calibration criteria mentioned above has been satisfied.

Step 2 - If there was no five-point calibration preceding sample analysis, then all the results are rejected (R).

Step 3 - Review Form VI PCDD-2, or laboratory equivalent, to determine if any labeled or unlabeled isomer is outside the ion abundance ratio, theoretical window.

a. If the ion ratio falls between 16 and 20%, all non-detected results associated with that initial calibration are qualified as estimated (ND(PQL)J).

b. If the ion ratio is greater than +/- 20%, all non-detected results associated with that initial calibration are qualified as unusable (R).

Step 4 - Review Form VI PCDD-1, or laboratory equivalent, to determine if the %RSD criterion has not been met:

a. If the %RSD is greater than 20%, but less than 30%, detected and non-detected sample results are qualified as estimated (J) and (ND(PQL)J), respectively.

b. If the %RSD is greater than 30%, detected and non-detected results are rejected (R).

G. GC/MS Continuing Calibration

Criteria

1.0 The continuing calibration standard should be analyzed at the beginning of each 12-hour period.

1.1 All PCDD/PCDF peaks, including the labeled internal and recovery standards, in all solutions must meet the +/- 15% theoretical abundance ratio criterion, listed on Form VII PCDD-1, or laboratory equivalent.

1.2 The measured RRF of each analyte and internal standard in the continuing calibration standard must be within +/- 30% of the mean RRF from the initial calibration.

Action

The following steps are performed in evaluating the initial calibration for Tier II validation:

Step 1 - Review Form VII PCDD-1 and Form VII PCDD-2, or laboratory equivalents, to verify that the continuing calibration criteria mentioned above has been satisfied.

Step 2 - Verify that continuing calibrations were analyzed at the required frequency by reviewing Form V PCDD-3, or laboratory equivalent.

Step 3 - If any analyte(s) failed the ion abundance ratio for the continuing calibration standard, all non-detected results are qualified as rejected (R) and all detected results are qualified as estimated (J).

Step 4 - Review Form VII PCDD-1, or laboratory equivalent, to determine if the percent difference (%D) criterion has not been met.

a. If the %D is between 30 and 50%, detected and non-detected sample results are qualified as estimated (J) and (ND(PQL)J), respectively.

b. If the %D is greater than 50%, all detected and non-detected results are qualified as rejected (R).

H. Method Blank Analysis

Criteria

1.0 No contaminants should be present in the blank(s).

1.1 A method blank must be analyzed for each GC/MS system used to analyze that specific group or set of samples.

1.2 Internal standard recovery must be between 25 to 150%.

Action

The following steps are performed in evaluating the method blank analysis for Tier II validation:

Step 1 - Review Forms I and IV PCDD or laboratory equivalent and verify that blanks were analyzed at the appropriate frequency described above and that the blanks were free of contamination.

Step 2 - If a target compound is found in the blank, but not in the sample, no qualification of the data is performed.

Step 3 - Any compound that is detected in the sample (except OCDD and OCDF) and in the related method blank, is qualified with a "B" if the sample concentration is less than the five times the blank concentration. OCDD and OCDF are qualified with a "B" when the sample result is less than 10 times the blank concentration.

Step 4 - When the blank analysis involves internal standard recoveries out of control, the related sample data are reviewed and qualified in the following manner:

a. If the sample data do not contain any internal standards out of control, then the data are not qualified.

b. If the sample data contain internal standards out of control, then all detected and non-detected sample results for compounds quantitated using that internal standard are qualified as estimated (J) and (ND(PQL)J), respectively.

I. Matrix Spike Analysis

Criteria

1.0 For each SDG, the laboratory must prepare a spiked sample for each matrix and concentration level that occur in the SDG.

1.1 The recovery of each spiked analyte must be between 50-150%.

Action

The following steps are performed in evaluating the matrix spike analysis for Tier II validation:

Step 1 - Review the extraction log and Form V PCDD-3, or laboratory equivalent, verify that matrix spike analysis was analyzed at the appropriate frequency described above. If the frequency was not in compliance, the laboratory will be contacted for a written explanation.

Step 2 - Evaluate Form III PCDD-1, or laboratory equivalent, if the recovery results are not within the control limits, the following steps are taken to qualify the data:

a. If the recovery results are greater than the upper control limit, the detected results for that class of compounds in the unspiked sample are qualified as estimated (J).

b. If the recovery results are below the lower control limit presented in Table 5, the detected results for this compound are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) reanalyzing the existing sample; or (iii) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database.

c. If the recovery is less than 25%, but greater than 10%, the non-detects for that class of compound in the unspiked sample are qualified as estimated (ND(PQL)J)

d. If the recovery result is less than 10%, the non-detects for that class of compound in the unspiked sample are qualified as rejected (R).

J. Duplicate Analysis

Criteria

1.0 For each SDG, the laboratory must prepare a duplicate sample for each matrix in the SDG.

1.1 The RPD of any detected analyte must be less than or equal to 50%.

Action

The following steps are performed in evaluating the duplicate analysis for Tier II validation:

Step 1 - Review the extraction log and Form V PCDD-3, or laboratory equivalent, verify that duplicate analyses were extracted and analyzed at the appropriate frequency as described above. If the frequency was not in compliance, the laboratory will be contacted for a written explanation.

Step 2 - Evaluate Form IV PCDD-1, or laboratory equivalent, if RPD results are greater than 50%. Qualify all positive sample results for that compound in the SDG as estimated (J).

K. Internal Standard (IS) and Cleanup Standard Recoveries

Criteria

The percent recovery of any IS in the original sample, prior to any dilutions, must be within 25 to 150%. When the percent recovery is not within these control limits, re-extraction and re-analysis of the affected sample is required.

Action

The following steps are performed in evaluating the IS and cleanup standard recoveries analysis for Tier II validation:

Step 1 - Review the extraction log and Form I, or laboratory equivalent, verify that the IS recoveries are within the control limits of 25 to 150%.

Step 2 - If internal standard and/or cleanup standard recoveries are outside the control limits and re-analysis was not completed, the laboratory will be contacted for a written explanation.

Step 3 - If an IS recovery is greater than 150%, then all detected results associated with that internal standard are qualified as estimated (J).

Step 4 - If an internal standard recovery is less than 25%, the detected sample results quantitated using that IS are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) reanalyzing the existing sample; or (iii) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database.

Step 5 - If an internal standard recovery is less than 25%, non-detected sample results associated with that internal standard are qualified as estimated (ND(PQL)J).

Step 6 - If an internal standard recovery is less than 10%, all non-detected sample results associated with that internal standard are qualified as unusable (R).

L. Sample Dilutions

Criteria

A dilution is required when the concentration of any PCDD/PCDF is greater than the calibration range.

Action

Review Form I PCDD-1, or laboratory equivalent, to determine if any of the sample results are greater than the calibration range, the sample results are qualified as estimated (J).

V. Tier III Validation Procedures

Tier III validation of a data package consists of the steps mentioned above for a Tier I and Tier II validation plus review of the "raw data" and recalculation of approximately 10% of the sample results. The Instrument Sensitivity, Initial and Continuing Calibration, Compound identification, Toxicity Equivalency Factor, Column Confirmation, Sample Dilution, Sample Reanalysis, Estimated Detection Limits, Estimated Maximum Possible Concentration, are also reviewed.

A. Instrument Sensitivity

Criteria

The CC1 solution analyzed at the end of the twelve-hour period must meet the following criteria:

1.0 The absolute retention time of the recovery standards, 13C12-1234-TCDD and 13C12-123678-HxCDD, must not change more than 10 seconds between the initial CC3 analysis and the analysis of the CC1 at the end of the sequence.

1.1 All the analytes in the CC1 solution must meet the ion abundance ratio criteria listed below:

Table D-1

Analyte	Selected Ions	Theoretical Ion Abundance	Control Limits
TCDD	320/322	0.77	0.65 - 0.89
PeCDD	356/358	1.55	1.24 -1.86
HxCDD	390/392	1.24	1.05 - 1.43
HpCDD	424/426	1.04	0.88 - 1.20
OCDD	458/460	0.89	0.76 - 1.02
TCDF	304/306	0.77	0.65 - 0.89
PeCDF	340/342	1.55	1.24 - 1.86
HxCDF	374/376	1.24	1.05 - 1.43
HpCDF	408/410	1.04	0.88 - 1.20
OCDF	442/444	0.89	0.76 - 1.02
Internal Standards			
$^{13}C_{12}$-1234-TCDD	332/334	0.77	0.65 - 0.89

Analyte	Selected Ions	Theoretical Ion Abundance	Control Limits
$_{13}C_{12}$-123678-HxCDD	402/404	1.24	1.05 - 1.43
$^{13}C_{12}$-OCDD	470/472	0.89	0.76 - 1.01
$^{13}C_{12}$-2378-TCDF	316/318	0.77	0.65 - 0.89
$^{13}C_{12}$-1234678-HpCDF	420/422	1.04	0.88 - 1.20
Recovery Standards			
$^{13}C_{12}$-1234-TCDD	332/334	0.77	0.65 - 0.89
$^{13}C_{12}$-123789-HxCDD	402/404	1.24	1.05 - 1.43

1.2 The CC1 solution signal to noise (S/N) ratio of the chromatogram shall be greater than 2.5 for the unlabeled PCDD/PCDF and greater than 10.0 for the labeled internal and recovery standards. The percent recovery of the internal standards should be within the control limits of 25 to 150%.

Action

The following steps are performed in evaluating the instrument sensitivity for Tier III validation:

Step 1 - Compare the retention time (RT) of the recovery standards from the chromatographs and quantitation reports of CC3 and CC1. If the RT changes more than +/- 10 seconds, samples analyzed since the last acceptable CC3 standard will be re-analyzed, if the sample has not been destroyed. If the sample has been destroyed, the sample results are qualified as rejected (R).

Step 2 - If the standard's ion abundance ratios are not within the control limits presented in Table BB-1, then all non-detected sample results since the last acceptable CC3 are qualified as rejected (R).

Step 3 - If the S/N is less than 2.5 for the two quantitation ions, then all non-detected sample results analyzed since the last acceptable CC1 are qualified as rejected (R).

B. GC/MS Initial Calibration

Criteria

1.0 All calibration solution retention times for each isomer must fall within the appropriate retention time windows established by the window defining mix. The absolute retention time of the recovery standards, $^{13}C_{12}$-1234-TCDD and $^{13}C_{12}$-123678-HxCDD, must not change more than 10 seconds between the initial CC3 analysis and the analysis of the CC1 at the end of the sequence.

1.1 All calibration solution S/N ratios must be greater than 2.5 for the unlabeled PCDD/PCDF ions, and greater than 10 for the internal standard and recovery standard ions.

Action

The following steps are completed when evaluating the initial calibration by reviewing the raw data for each standard for Tier III validation:

Step 1 - If the recovery standards drift more than +/-10 seconds from the initial CC3 analysis, all detected and non-detected sample results are qualified as rejected (R).

Step 2 - If the quantitation ions and the confirmation ion do not maximize within +/-2 seconds for the labeled and unlabeled standards, non-detected sample results are qualified as rejected (R).

Step 3 - For instrument sensitivity evaluation, follow the steps in Section IV.A.

C. GC/MS Continuing Calibration

Criteria

1.0 Retention times of each isomer must fall within the appropriate retention time windows established by the window defining mix. The absolute retention time of the recovery standards, $^{13}C_{12}$-1234-TCDD and $^{13}C_{12}$-123678-HxCDD, must not change by more than 10 seconds between the initial CC3 analysis and the analysis of the CC1 at the end of the sequence.

1.1 For the CC3 calibration solution the S/N ratio must be greater than 2.5 for the unlabeled PCDD/PCDF ions, and greater than 10 for the internal standard and recovery standard ions.

1.2 The percent recovery of the internal standards should be within 25 to 150%.

Action

The following steps are done in evaluating the continuing calibration by reviewing all the raw data of the CC3 standard for Tier III validation:

Step 1 - If the recovery standards drift by more than +/-10 seconds from the CC3 analysis, all detected and non-detected sample results are qualified as rejected (R).

Step 2 - If the quantitation ions and the confirmation ion do not maximize within +/-2 seconds for the labeled and unlabeled standards, non-detected sample results are qualified as rejected (R).

Step 3 - For instrument sensitivity evaluation, follow the steps in Section IV.A.

Step 4 - If the percent recovery of the internal standards are not within the control limits of 25 to 150%, all detected and non-detected sample results are qualified as estimated (J) and (ND(PQL)J), respectively.

D. Identification Criteria

Criteria

1.0 The absolute Retention Times (RTs) of the recovery standards must not shift by more than +/- 10 seconds from their retention times in the continuing calibration standard.

1.1 The absolute RT at the maximum peak height of the 2378-substituted isomer must be within -1 to +3 seconds of the RT of the corresponding labeled internal or recovery standard.

1.2 The relative retention time (RRT) of the 2378-substituted isomer must be within 0.05 RRT units of the RRT established during the continuing calibration.

1.3 The retention time of non-2378-substituted compounds (tetra - hepta), must be within the RT windows established by the window defining mix for the corresponding homologue, +/- 10 seconds.

1.4 The two quantitation ions and the confirmation ion for the analytes detected must maximize concurrently (+/- 2 seconds). This also is a requirement for the internal standards and recovery standards.

1.5. The sample peak areas for quantitation ions must meet the +/- 15% theoretical abundance ratio criteria listed in Table BB-1.

1.6 The integrated ion current for each analyte must be at least 2.5 times background noise and the detector must not be saturated. The internal standard ions must be at least 10 times the background noise and must not have saturated the detector. The percent recovery of the internal standards should be within 25 to 150%.

Action

The following steps are taken in evaluating the identification of the compounds by reviewing all the sample raw data for Tier III validation:

Step 1 - If the retention time criteria is not met and a detected result has been reported, then the result is lined out and a non-detected result will be recorded.

Step 2 - If the quantitation ions and confirmation ion do not maximize within +/- 2 seconds, then the result is lined out and a non-detected result will be recorded.

Step 3 - If the quantitation ions do not meet the signal-to-noise criteria, then the result is lined out and a non-detected result will be recorded.

Step 4 - If the ion abundance criteria are not met, but the abundances are within the +/- 15% to 25% ion ratio window, the sample results are qualified as estimated (J). Any sample result with an ion abundance greater than +/- 25% is qualified as rejected (R).

E. Toxicity Equivalency Factor (TEF) and Second Column Confirmation

Criteria

1.0 For each 2378-substituted isomer positively identified in the sample, the TEF from Form I PCDD-2 is multiplied by the concentration to give the TEF-adjusted concentration.

1.1 When the TEF is greater than 0.7 ppb in soil/sediment or 7 ppt in water, secondary column confirmation is required.

Action

The following steps are taken in evaluating the TEF and second Column Confirmation by reviewing Form I PCDD-2, Form II PCDD-3, or laboratory equivalent, and sample raw data for Tier III validation:

Step 1 - Review approximately 10% of the TEF calculations. If any discrepancies in the calculations are found, then the laboratory will be contacted and the sample results will be resubmitted.

Step 2 - Verify that secondary column confirmation has been performed when needed. If it has not been done, the laboratory will be contacted to conduct the secondary column confirmation if the sample has not been destroyed.

F. Sample Dilution

Criteria

1.0 When a sample is diluted, the sample results are quantified using the internal standard if the recovery is greater than or equal to 10%.

1.1 When a sample is diluted, the sample results are quantified using the recovery standards for target compounds associated with the internal standard, if the recovery is less than 10%.

Action

The following steps are taken in evaluating the sample dilution raw data for Tier III validation:

Step 1 - Review the diluted sample data. If the recovery of the internal standard is less than 10% but all the other internal standard criteria are met, then the sample results are recalculated using the internal standards.

G. Sample Re-analysis

Criteria

1.0 If any internal standard or the cleanup standard is outside the control limits of 25 to 150%, then re-extraction and re-analysis are required.

1.1 In instances where the internal standards and cleanup standard are not present with at least a 10:1 S/N ratio at their respective m/z, then re-extraction and re-analysis are required.

1.2 Samples with positive results that are associated with a contaminated method blank and any samples that contain peaks that do not meet all qualitative identification criteria related to the method blank should be re-extracted and re-analyzed.

Action

The following steps are taken in evaluating the sample re-analysis raw data for Tier III validation:

Step 1 - If sample re-analysis is required by the criteria above, the original sample analysis and re-analysis will be compared and the best analysis will be reported.

H. Estimated Detection Limit (EDL) and Estimated Maximum Possible Concentration (EMPC)

Criteria

For each non-detected sample result, an EDL is calculated. The EMPC is a value applied to a sample when the S/N ratio is at least 2.5 for both quantitation ions, but ion abundance criteria are not met. Approximately 10% of these sample results will be recalculated.

Action

If the EDL and EMPC are calculated incorrectly, the laboratory will be contacted and the laboratory will be responsible for resubmission of the reported sample results.

ARCADIS

Validation Annex E

Data Validation Procedures for Conventional Parameters Analytes

Data Validation Procedures for Conventional Parameters Analytes

I. Introduction

This standard operating procedure (SOP) describes the data validation procedures for an EPA Region I tiered review of data for conventional parameters (as defined in Section 4.2.2 of the FSP/QAPP) analyzed by Standard Methods for the Examination of Water and Wastewater and EPA Methods 100, 300, and 400 series. Data review procedures presented in this SOP were developed from the applicable quality control criteria specified in the following documents:

- EPA Region I*, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses* (July 1996, revised December 1996) (EPA Region 1 Guidelines);
- *Standard Methods for the Examination of Water and Wastewater, 18th ed.;*
- EPA Contract Laboratory Program, *Statement of Work for the Inorganics Analysis,* Revision ILM0.5.4 (November 2008);
- EPA, *Test Methods for Evaluating Solid Waste*: Physical/Chemical Methods, SW-846, 3rd Edition (September 1986) and subsequent revisions; and
- EPA, *Methods for Chemical Analysis of Water and Wastes*, EPA 600/4-79-020 (March 1979) and subsequent revisions.

II. USEPA Region I Tiered Validation Procedures

All analytical data on conventional parameters will be validated to a Tier I level following the procedures presented in the EPA Region I Guidelines (cited above). The basic Tier I review consists of a completeness evidence audit to ensure that all laboratory data and documentation are present. Additionally, for projects subject to this FSP/QAPP, the Tier I review will be modified and expanded to include a number of elements of Tier II review, including review of each sample delivery group (SDG) to identify data deficiencies that may potentially result in qualification of the data (e.g., systematic deviations such as low calibration response factors.) Based on this modified Tier I review, a subset of the data will be identified for additional Tier II review. If QA/QC deviations are identified during the modified Tier I review, those deviations will be addressed in the Tier II review. Otherwise, a minimum of 25% of the data will be chosen at random to be subjected to a Tier II review, which will consist of the Tier I completeness evidence audit and review of all data package summary forms for identification of QA/QC parameter deviations. The Tier II data review will be used to identify and evaluate systematic QA/QC deficiencies that may affect any or all of the sample data presented in a specific data package. The Tier II data validation also includes an evaluation of field duplicate relative percent difference (RPD) compliance. Additional Tier II review and Tier III (recalculation of sample results) review may also be performed for a

larger portion of the data set, if required, to fully resolve data usability limitations identified during the modified Tier I data review and initial Tier II review for 25% of the data chosen at random.

The tiered data validation procedures consisting of modified Tier I review for all data, Tier II review of a minimum of 25% of the data, and additional Tier II and Tier III review, as required, will be used to evaluate compliance of each data set with the project-specific data quality objectives. The procedures presented in the following sections will be used to perform the Tier I, Tier II, and Tier III data validation reviews. Qualification of analytical data will also be performed, if required, as specified in the data validation protocols presented below.

III. Tier I Validation Procedures

Tier I validation of a data package consists of verifying that all raw data and forms are included and complete. In the event that data packages are determined to be incomplete, missing information will be requested from the laboratory. A data validation summary spreadsheet (in the form presented in Attachment E-1) will be prepared to document the data review. The following steps are taken to complete a Tier I validation:

Step 1 - Review the laboratory case narrative. During review of the case narrative, if there are any deviations that warrant a more extensive validation procedure, a Tier II review would be initiated to evaluate potential data use limitations.

Step 2 - Compare the chain-of-custody and the sample traffic reports. If there are any inconsistencies or if they are incomplete, then contact the laboratory for resolution.

Step 3 - Verify that all sample result summary forms are present and complete. If any of the forms are not in the data package, contact the laboratory for a resubmission.

Note: If frequent or severe quality control deviations are present on the above-mentioned forms, a more extensive validation procedure may be warranted. Based on the reviewer's judgment, Tier II or Tier III review may be warranted to fully evaluate the usability of the data.

Step 4 - Verify that the following raw data is provided for each sample and any associated QA/QC samples in the data package. Contact the laboratory to obtain missing data (if required):

- Case Narrative;
- Chain-of-Custody Forms;
- Traffic Reports;

- QA Sample Summary Forms;
- Laboratory Bench sheets;
- Instrument Calibration Summary Forms;
- Instrument Run Logs;
- Sample Preparation Logs;
- Instrument/Method Detection Limits;
- Standards Preparation Logs; and
- Supporting (raw) Data.

Step 5 - With a blue ink pen, record on the first page of the data package: the validation level, date, and reviewer's initials.

In addition to these steps, as discussed above, the Tier I review of data packages for projects subject to this FSP/QAPP will be expanded to include some elements of Tier II review, including review of the data packages to identify QA/QC deficiencies that may require qualification of the data.

VI. Tier II Validation Procedures

Tier II validation of a data package consists of the steps mentioned above for a Tier I review plus review of the data package for identification of QA/QC deviations. Tier II validation does not include review of the "raw data" or recalculation of sample results. The QC sample data presented on the data package summary forms will be compared against the control limits presented in Tables 4 and 5 of the FSP/QAPP to determine QC sample compliance. Sample qualification, if required, will be performed following the EPA Region I Guidelines, as discussed in the following sections.

A. Data Qualifiers

All data qualified due to QA/QC deviations will be clearly marked on a copy of the sample result summary forms with a blue ink pen. The laboratory qualification is lined out and the reviewer's qualification placed next to it. The date and the initials of the reviewer will also be placed on the sample result summary forms. Below is a list of qualifiers to be used.

J The compound or analyte was positively identified, but the associated numerical value is an estimated concentration. This qualifier is used when the data evaluation procedure identifies a deficiency in the data generation process. This qualifier is also used when a compound or analyte is detected at estimated concentrations less than the practical quantitation limit (PQL). (When this qualifier is used in combination with the letter C -- i.e., JC -- that indicates that the sample result is an estimated concentration due to certain QC deficiencies and that a bias-corrected result is available, as discussed further below.)

ND The compound was analyzed for, but was not detected at the method detection limit. The sample PQL (which is normally the same as the reporting limit [RL]) is presented in parentheses and adjusted for dilution. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, non-detected sample results are displayed as ND(PQL). (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier U for non-detected compounds.)

ND J The compound was analyzed for and not detected, but the sample PQL (presented in parentheses and normally the same as the RL) is estimated and may or may not represented the actual level of quantitation. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, these non-detected sample results are displayed as ND(PQL)J. (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier UJ for non-detected compounds in this category.)

R Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data should not be used for any qualitative or quantitative purposes.

B. Holding Times

Criteria

The holding times presented in Table 1 of the FSP/QAPP for conventional parameter analyses must not be exceeded.

Action

The following steps are performed to review holding times for Tier II validation:

Step 1 - Establish the holding time by comparing the sampling date on the chain-of-custody with the dates of analysis and/or digestion on the sample result summary form. The chain-of-custody is also reviewed to determine if the samples were properly preserved.

Step 2 - If the holding times are exceeded by less than 24 hours, no qualification of data is needed.

Step 3 - If the holding times are exceeded by more than 24 hours, but less than 14 days, all positive results are flagged as estimated (J) and the non-detected compounds are flagged as estimated (ND(PQL)J).

Step 4 - If the holding times are exceeded by more than twice the specified holding time, all results are flagged as unusable (R).

C. Percent Moisture Content

Criteria

Soil/sediment/solid sample results must be adjusted for percent solids, and must have percent solids greater than 30%.

Action

The following steps are performed by reviewing the sample result summary form during the validation of percent solids data:

Verify that the percent solids of soil/sediment/solid samples are greater than 30%.

a. Soil/sediment/solid sample results with a percent solids of less than 10% are qualified as unusable (R).

b. Detected and non-detected soil/sediment/solid sample results with percent solids within the range of greater than 10% to less than 30% are qualified as estimated (J) and unusable (R), respectively.

D. Method Detection Limit (MDL) Study

Criteria

1.0 The MDL for each analyte of interest must be established in accordance with the specified method and Code of Federal Regulations (40 CFR Part 136, App. B). A minimum of seven replicates must be analyzed for each matrix of interest.

2.0 The percent relative standard deviation (%RSD) for the seven replicates of the analytes must be less than or equal to 25% and the mean percent recovery must be between 80 and 120%.

Action

1.1 If the mean percent recovery of any analyte is greater than 120% all associated detected sample results are qualified as estimated (J).

1.2 If the mean percent recovery of any analyte is less than 80% but greater than 10% all associated detected and non-detected sample results are qualified as estimated (J).

1.3 If the mean percent recovery of any analyte is less than 10%, all associated detected and non-detected sample results are qualified as estimated (J) and unusable (R), respectively.

1.4 If the %RSD of any analyte is greater than 25%, all associated detected results less than 3 times the PQL and non-detected sample results are qualified as estimated (J) and (ND(PQL)J), respectively.

E. Calibration

Criteria

1.0 Instruments must be calibrated daily and each time the instrument is set up for analysis.

1.1 Initial Calibration

1.1.1 A blank and at least three standards must be used in establishing the analytical curve.

1.1.2 The correlation coefficient must be greater than or equal to 0.995.

1.2 Initial and Continuing Calibration Verification (ICV and CCV)

1.2.1 A certified standard must be used for the initial Calibration Verification (ICV).

1.2.2 All percent recoveries of the ICVs and CCVs for all analytes must be within 85 to 115%.

1.2.3 A CCV must be analyzed every 10 samples.

Action

The following steps are performed to review instrument calibration for Tier II validation:

Step 1 - Verify that the instrument was calibrated daily and every time it was set up by reviewing the calibration result summary form or laboratory equivalent. Also, verify that the correct number of standards were used for the initial calibration for each analyte reported. If any of these tasks are not completed by the laboratory, the data are qualified as unusable (R).

Step 2 - Verify that the correlation coefficient is greater than or equal to 0.995. If this criterion is not meet, all detected and non-detected results are qualified as estimated (J) and (ND(PQL)J), respectively.

Step 3 - Review the calibration result summary form or laboratory equivalent for the identification of the source of the ICV and CCV. If they are not from different sources, all detected and non-detected results are qualified as estimated (J) and (ND(PQL)J), respectively.

Step 4 - ICV and CCV percent recovery calibration result summary form or laboratory equivalent are reviewed against the above mentioned criteria. If the ICV or CCV percent recovery are outside the acceptance criteria, the following steps are taken to qualify the data:

a. If the ICV or CCV percent recovery is not within control limits, but are within the range of 70 to 84% or 116 to 130% all detected results are qualified as estimated (J).

b. If the ICV or CCV percent recovery is not within control limits, but are within the ranges of 116 to 130% all non-detected results are not qualified.

c. If the ICV or CCV percent recovery is not within control limits, but are within the ranges of 70 to 84%, all non-detected results are qualified as estimated (ND(PQL)J).

d. If the ICV or CCV percent recovery less than 70%, all non-detected results are qualified as unusable (R).

Step 5 - Laboratory bench sheets are reviewed to verify that the CCVs were analyzed in the required intervals. If they were not analyzed at the required intervals, all detected and non-detected results are qualified as estimated (J) and (ND(PQL)J), respectively.

F. Blanks

Criteria

1.0 No contaminants should be present in the blank(s).

1.1 A preparation blank must be analyzed every 20 samples or for each batch digested, whichever is more frequent.

1.2 A calibration blank (CCB) must be analyzed after every 10 samples.

Action

Qualification of sample results due to blank contamination is dependent on the conditions and the origin of the blank. No sample results are reported unless the concentration of the analyte in the sample exceeds five times the amount detected in any blank. No sample results are corrected by subtracting blank values. Specific qualifications of sample data are as follows:

Step 1 - Review the blank result summary form or laboratory equivalent for all blanks within the data package.

Step 2 - If a blank result is greater than 2 times the negative IDL, all non-detects are qualified as estimated (ND(PQL)J).

Step 3 - If an analyte is found in the blank, but not in the sample, the data are not qualified.

Step 4 - When an analyte is detected in the sample and the sample concentration is less than five times the concentration detected in the associated blank, the data are qualified as non-detected (ND).

Step 5 - When a positive result is greater than the action level, the result is not qualified.

Note: Any difference between the sample analyses and the related blank analyses which involve weights, volumes or dilution factors must be taken into account when the 5-times criterion are required.

The following are examples of how qualifications apply to blank data:

Example 1 (Step 4): When the sample result is less than the PQL but greater than the action level. Positive results less than the action level are qualified as non-detects.

Factor	5-times
Blank Result	7
PQL	5
Action level	35
Sample Result	22
Qualified Sample Result	ND(22)

Example 2 (Step 5): When the sample result is greater than the PQL and the action level, no qualification is used.

Factor	5-times
Blank Result	10
PQL	8
Action level	50
Sample Result	70
Qualified Sample Result	70

H. Matrix Spike Sample Analysis

Criteria

1.0 Samples identified as field blanks cannot be used for spiked sample analysis.

1.1 Spike recoveries must be within the control limits of 75 to 125%. However, the control limits do not apply when the sample concentration surpasses the spike concentration by a factor of four or more.

Action

The following steps are performed to review inorganic matrix spike analysis for Tier II validation:

Step 1 - Matrix spike recoveries are reviewed on the matrix spike result summary form or laboratory equivalent. If they are out of the control limits of 75 to 125%, the following steps are taken:

a. When the spike recovery is greater than 125% and the reported sample results are non-detected, no qualification of data is needed.

b. When the spike recovery is greater than 125% and the reported sample results are greater than the PQL, the data are qualified as estimated (J).

c. When the spike recovery is less than 75% and the reported sample results are greater than the PQL, all positive results are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) reanalyzing the existing sample; (iii) bias-correcting the sample result to 100% recovery; or (iv) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database. In the event that the sample result is bias-corrected, the uncorrected result will be further qualified as estimated/bias-corrected result available (JC), and the bias-corrected result will be presented in the notes field of the data validation summary table.

d. If the spike recovery is within the range of 30 to 74% and the sample results are non-detected, the data are qualified as estimated (ND(PQL)J).

e. If the spike recovery is less than 30% and the sample results are non-detected, the data are qualified as unusable (R).

I. Duplicate Analysis

Criteria

1.0 Samples identified as field blanks cannot be used for duplicate sample analyses.

1.1 A control limit of +/- 20% for waters and +/- 35% for soils for the Relative Percent Difference (RPD) are used for sample results greater than five times the PQL as presented in Table 5 of the FSP/QAPP.

1.2 A control limit of +/- the PQL for waters and +/- 2 times the PQL for soils for the RPD or Absolute Difference are used for sample values less than five times the PQL, including when only one sample value is greater than 5 times the PQL or when one sample is above the method detection limit (MDL) and one is non-detected.

1.3 Duplicate sample analysis must be prepared and analyzed for every 20 samples, for every batch digested, or for every matrix, whichever is more frequent.

Action

Verify on the duplicate result summary form or laboratory equivalent that the RPD for the duplicate samples analysis is within the above mentioned criteria. If duplicate analysis results are outside the appropriate control windows, all sample results greater than the PQL for that analyte and the same matrix are qualified as estimated (J).

J. Field Duplicates

Criteria

1.0 For sample values greater than 5 times the PQL, the control limit for the RPD for water matrices is +/- 30% and +/- 50% for soil matrices.

1.1 For sample values less than 5 times the PQL, the control limit of +/-2 times the PQL for waters and +/- 4 times the PQL for soils will be used.

Action

Step 1 - Calculate all the RPD values for positive results between the sample and the field duplicate.

$$\text{Calculation:} \quad RPD = \frac{\text{Sample Result - Field Duplicate}}{\text{(Sample Result + Field Duplicate)/2}} \times 100$$

Step 2 - If duplicate analysis results are outside the appropriate control limits, all sample results greater than the PQL for that analyte and the same matrix are qualified as estimated (J).

K. Laboratory Control Sample (LCS) Analysis Limits

Criteria

1.0 Aqueous LCS results must fall within the control limits of 80 to 120%.

1.1 Solid LCS results must fall within the control limits established by the laboratory as presented on LCS result summary form or the laboratory equivalent.

1.2 A LCS must be prepared and analyzed for every 20 samples, for every batch digested, or for every matrix, whichever is more frequent.

Action

2.0 The following steps are taken to evaluate the aqueous LCS:

Step 1 - Review the Form VII or the laboratory equivalent for any analyte that is outside the control limits of 80 to 120%.

Step 2 - If the LCS recovery for any analyte is greater than 120%, results greater than the PQL are qualified as estimated (J).

Step 3 - If the LCS recovery for any analyte is less than 80%, sample results greater than the PQL are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) reanalyzing the existing sample; (iii) bias-correcting the sample result to 100% recovery; or (iv) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database. In the event that the sample result is bias-corrected, the uncorrected result will be further qualified as estimated/bias-corrected result available (JC), and the bias-corrected result will be presented in the notes field of the data validation summary table.

Step 4 - If the sample results are non-detects and the LCS recovery is greater than 120%, no qualification of the data is performed.

Step 5 - If the sample results are non-detects and the LCS recoveries are within the control limits of 50 to 79%, the data are qualified as estimated (ND(PQL)J).

Step 6 - If the LCS recoveries for any analyte are less than 50%, the data for that analyte are qualified as unusable (R).

2.1 The following steps are taken to evaluate the soil LCS:

Step 1 - Review the Form VII or laboratory equivalent to identify any analyte that is outside the control limits established by the laboratory.

Step 2 - If any solid LCS recoveries for any analyte are greater than the upper laboratory established control limits, all results greater than the PQL are qualified as estimated (J).

Step 3 - If any solid LCS recoveries for any analyte are less than the lower laboratory established control limits, sample results greater than the PQL are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) reanalyzing the existing sample; (iii) bias-correcting the sample result to 100% recovery; or (iv) if the result would have no significant effect on achieving the

applicable Performance Standard, simply maintaining the qualifier in the database. In the event that the sample result is bias-corrected, the uncorrected result will be further qualified as estimated/bias-corrected result available (JC), and the bias-corrected result will be presented in the notes field of the data validation summary table.

Step 4 - If the LCS results are greater than the upper control limits and the sample results are non-detected, no qualification of the data is needed.

Step 5 - If the LCS results are less than the lower control limits and the sample results are non-detected, the data are qualified as estimated (ND(PQL)J).

V. Tier III Validation Procedures

Tier III validation of a data package consists of the steps mentioned above for a Tier I and Tier II validation plus review of the "raw data" and recalculation of approximately 10% of the sample results.

A. Calibration

Criteria

1.0 The initial calibration for must contain three standards, one of which must be at the PQL.

1.1 The correlation coefficient must be greater than or equal to 0.995.

Action

The following steps are taken when verifying calibration for Tier III validation:

Step 1 - Review the calibration raw data and laboratory bench sheets to confirm that the curve for the analysis did include a standard at the PQL. If there is not a standard at the PQL, all positive sample results up to 2 times the PQL and non-detected results are qualified as estimated (J) and (ND(PQL)J), respectively.

Step 2 - Evaluate the raw data and calculate the correlation coefficient. If the correlation coefficient is less than 0.995, all results greater than the PQL and non-detects are qualified as estimated (J) and (ND(PQL)J), respectively.

C. Sample Result Verification

Criteria

The quantitation of the analytes and the adjustment of the PQL for dilution and percent solids must be recalculated for 10% of the data.

Action

If the criteria above have not been followed, then the laboratory will be contacted by the reviewer and the laboratory will be responsible for resolving any discrepancies and resubmission of results, if needed.

Validation Annex F

Data Validation Procedures for Analyses of Polychlorinated Biphenyls (PCBs) in Air and Soil Gas Samples

Data Validation Procedures for Analyses of Polychlorinated Biphenyls (PCBs) in Air and Soil Gas Samples

I. Introduction

This Standard Operating Procedure (SOP) describes the data validation procedures for a United States Environmental Protection Agency (EPA) Region I tiered review of data from ambient air samples analyzed for polychlorinated biphenyls (PCBs) by EPA Method T0-4A and indoor air and/or soil gas samples analyzed for PCBs by EPA Method TO-17 (modified). Data review procedures presented in this SOP were developed from the applicable quality control criteria specified in the following documents:

- EPA Region I, *EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses* (July 1996, revised December 1996) (EPA Region I Guidelines):

- EPA Region I*, Region I Laboratory Data Validation Functional Guidelines for Evaluating Pesticide/PCB Analyses*, (February 2004);

- EPA, *Compendium Methods TO-4A Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using High Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)* (January 1999); and

- EPA, *Compendium Methods TO-17, Determination of Volatile Organic Compounds in Ambient Air Using Active Sampling Onto Sorbent Tubes* (January 1999) (modified for analyses of PCBs).

This SOP is limited to the validation of PCB monitoring data from ambient air, indoor air, and/or soil gas samples. An SOP specifying the data validation procedures for data from samples of other matrices analyzed for PCBs (e.g., soil, sediment, water, and biota) is provided in Validation Annex B.

II. EPA Region I Tiered Validation Procedures

All analytical data on PCBs will be validated to a Tier I level following the procedures presented in the EPA Region I Guidelines (cited above). The basic Tier I review consists of a completeness evidence audit to ensure that all laboratory data and documentation are present. Additionally, for projects subject to this FSP/QAPP, the Tier I review will be modified and expanded to include a number of elements of Tier II review, including review of each sample delivery group (SDG) to identify data deficiencies that may potentially result in qualification of the data (e.g., systematic deviations such as low calibration response factors.)

For all analytical data for PCBs in ambient air, indoor air, and soil gas samples, with the exception of the data collected from the ambient air monitors around GE's On-Plant Consolidation Areas (OPCAs) at the GE facility, a subset of the data will be identified for additional Tier II review. If QA/QC deviations are

identified during the modified Tier I review, those deviations will be addressed in the Tier II review. Otherwise, a minimum of 25% of the data will be chosen at random to be subjected to a Tier II review, which will consist of the Tier I completeness evidence audit and review of all data package summary forms for identification of QA/QC parameter deviations. However, for the ambient air data collected from the OPCA air monitors, 100% of the data will be subject to full Tier II review. The Tier II data review will be used to identify and evaluate systematic QA/QC deficiencies that may affect any or all of the sample data presented in a specific data package. The Tier II data validation also includes an evaluation of field duplicate (co-located samples) Relative Percent Difference (RPD) compliance. Additional Tier II review and Tier III (recalculation of sample results) review may also be performed for a larger portion of the data set, if required, to fully resolve data usability limitations identified during the modified Tier I data review and initial Tier II review for a minimum of 25% of the data chosen at random.

The tiered data validation procedures consisting of modified Tier I review for all data, Tier II review of 25% of the data (or 100% of the data from the OPCA air monitors), and additional Tier II and Tier III review, as required, will be used to evaluate compliance of each data set with the project-specific data quality objectives. The procedures presented in the following sections will be used to perform the Tier I, Tier II, and Tier III data validation reviews. Qualification of analytical data will also be performed, if required, as specified in the data validation protocols presented below.

III. Tier I Validation Procedures

Tier I validation of a data package consists of verifying that all raw data and forms are included and complete. An analytical data validation summary spreadsheet (in the form presented in Attachment F-2) is prepared to document the data review. The following steps are taken to complete a Tier I review:

Step 1 - Review the laboratory case narrative. During review, if there are any deviations that warrant a more extensive validation procedure, a Tier II review would be initiated to evaluate potential data use limitations.

Step 2 - Compare the chain-of-custody and the sample traffic reports. If there are any inconsistencies or if they are incomplete, then contact the laboratory for resolution.

Step 3 - Verify that all forms are present and complete. If any of the forms are not in the data package, contact the laboratory for a resubmission.

Note: If frequent or severe quality control deviations are present on the above-mentioned forms, a more extensive validation procedure may be warranted. Based on the reviewer's judgement, Tier II or Tier III review may be conducted to fully evaluate the usability of the data.

Step 4 - Verify that the following raw data are provided for each sample and associated QA/QC samples in the data package. Contact the laboratory to obtain missing data (if required):

- Case Narrative
- Chain-of-Custody Forms
- Traffic Reports
- QA Sample Summary Forms
- Instrument Calibration Summary Forms
- Instrument Run Logs
- Sample Preparation Logs
- Instrument/Method Detection Limits
- Standards Preparation Logs
- Supporting (raw) Data

Step 5 - With a blue ink pen, record on the first page of the data package: the validation level, date, and reviewer's initials.

In addition to the steps discussed above, the Tier I review of data packages for projects subject to this FSP/QAPP will be expanded to include some elements of Tier II review, including review of the data packages to identify QA/QC deficiencies that may require qualification of the data.

IV. Tier II Validation Procedures

Tier II validation of a data package consists of the steps mentioned above for a Tier I review, plus review of the data package summary forms for identification of QA/QC deviations. Tier II validation does not include review of the "raw data" or recalculation of sample results. Sample qualification is performed (if required) following EPA Region I Guidelines.

A. Data Qualifiers

All data qualified due to QA/QC deviations will be clearly recorded on the data summary package Form I, or laboratory equivalent, with a blue or red ink pen. The laboratory qualification is lined out and the reviewer's qualification placed next to it. The date and the initials of the reviewer will also be placed on Form I. Below is a list of qualifiers that may be used.

J The compound was positively identified, but the associated numerical value is an estimated concentration. This qualifier is used when the data evaluation procedure identifies a deficiency in the data generation process. This qualifier is also used when a compound or analyte is detected at estimated concentrations less than the practical quantitation limit (PQL).

ND The compound was analyzed for, but was not detected at the method detection limit. The sample PQL (which is normally the same as the reporting limit [RL]) is presented in parentheses and adjusted for dilution. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, non-detected sample results are displayed as ND(PQL). (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier U for non-detected compounds.)

ND J The compound was analyzed for and not detected, but the sample PQL (presented in parentheses and normally the same as the RL) is estimated and may or may not represented the actual level of quantitation. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, these non-detected sample results are displayed as ND(PQL)J. (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier UJ for non-detected compounds in this category.)

R Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data should not be used for any qualitative or quantitative purposes.

B. Sample Collection and Holding Times

Criteria

1.0 For Method TO-4A, ambient air samples must be collected over a time period of 24 hours (+/- 60 minutes) at a sampling rate between 0.20 and 0.28 µg/m^3 with a sample volume no less than 276 standard cubic meters (scm) and no greater than 420 scm.

1.1 For Method TO-17, 10 liters of indoor air or soil gas samples are collected for PCB analysis in collection tubes containing one or a combination of sorbent packing materials.

Air samples and extracts must be preserved at <6° centigrade. Air samples must be extracted within seven days and extracts must be analyzed within 40 days.

Action

Specific holding times for ambient air, indoor air, and soil gas samples to be analyzed for PCBs are included in Table 1 of the FSP/QAPP. The following steps are performed for the validation of data due to sample collection and holding times:

Step 1 - The sampling documentation is reviewed to determine the sampling period, sampling rate and total sample volume.

Step 2 - If the sampling period is less than 23 hours or greater than 25 hours, all positive results are qualified as estimated (J) and the non-detected compounds are qualified as estimated (ND(PQL)J).

Step 3 - If the sampling rate is less than 0.20 µg/m^3 or greater than 0.28 µg/m^3, all positive results are qualified as estimated (J) and the non-detected compounds are qualified as estimated (ND(PQL)J).

Step 4 - If the sample volume is less than 276 scm or greater than 420 scm, all positive results are qualified as estimated (J) and the non-detected compounds are qualified as estimated (ND(PQL)J).

Step 5 - The holding time is established by comparing the sampling date on the chain-of-custody with the dates of analysis and/or extraction on Form I, or laboratory equivalent. The chain-of-custody is also reviewed to determine if the samples were properly preserved.

Step 6 - If the holding times are exceeded by less than 24 hours, then no qualification of data is needed.

Step 7 - If the holding times are exceeded by more than 24 hours but less than twice the holding time – i.e., 14 days for extraction and/or 80 days for analysis – all positive results are qualified as estimated (J) and the non-detected compounds are qualified as estimated (UJ).

Step 8 - If the holding times are exceeded by more than twice the specified holding time, then all results are qualified as unusable (R).

C. PCBs Instrument Performance

Criteria

1.0 The laboratory must report retention time window data on the PCBs Standards Summary (Form X), or laboratory equivalent, for each GC column used to analyze samples. Compounds must be within these retention time windows.

1.1 The retention time of DCB and TCMX in each analysis of PCBs must be compared to the retention time of the DCB and TCMX in Evaluation Standard Mix A. The Percent Difference (%D) must not exceed 0.3% for narrow-bore capillary columns and 1.5% if wide-bore capillary columns are used.

Action

Review the retention time %D presented on Form X or laboratory equivalent. The following steps outline the qualification of data for retention time shifts of DCB and TCMX:

Step 1 - If the retention time shift for DCB and TCMX is greater than 0.3% for a narrow-bore capillary column, or 1.5% for a wide-bore capillary column, the data are qualified as unusable (R).

Step 2 - If DCB and TCMX are absent, then the retention time shift cannot be evaluated (i.e., if they are diluted out due to high concentration of a target compound or matrix interference). No qualification of the data is required.

D. Calibration

Criteria

1.0 Initial Calibration for PCBs

At least a three-point calibration is required for quantification using a minimum of five peaks corresponding to the best matching Aroclor standard. The Percent Relative Standard Deviation (%RSD) of calibration factors must not be greater than 20% for TO-4A samples and 30% for TO-17 samples.

Note: The %RSD linearity check is required only for columns that are used for quantitation of sample and surrogate results. Columns used only to provide qualitative verification are not required to meet this criterion.

1.1 Initial Calibration Independent Verification for PCBs

The initial calibration should be verified by an independent calibration source yielding a percent recovery of 85% to 115%.

1.2 Analytical Sequence

1.2.1 Primary Analysis

At the beginning of each 24-hour period, continuing calibration verification (CCV) standard must be analyzed.

1.2.2 Confirmation Analysis

1.2.3 Only the standards containing the compounds to be confirmed are required. These standards must be repeated after every ten samples.

1.3 CCV Analysis

The calibration factor for each CCV standard analyzed at the midpoint must be within 15% of the initial calibration (20% on the confirmation columns) for TO-4A samples and 30% for TO-17 samples. The CCV standard must be analyzed at the beginning of the analytical sequence and after very ten samples.

Action

The following steps are performed during the validation of data due to calibration deviations:

Step 1 - Verify that the criterion for the initial calibration linearity have been met by reviewing Form VI or laboratory equivalents. If the criteria in sections IV.D.1.0 through IV.D.1.3 are not met, then all associated positive results are qualified as estimated (J).

Step 2 - Verify by reviewing Form VII, or laboratory equivalents, that the associated CCV %D between calibration factors is not greater than 15% for the compound(s) being quantitated. If the %D is greater than this criterion, then all associated positive results are qualified as estimated (J).

Qualification of PCB Compounds Based on Initial Calibration Deviations

Sample Results	Initial Calibration %RSD > 20.0% (30% for TO-17)	Continuing Calibration %D > 15% (30% for TO-17)
Detects	J	J
Non-Detects	ND(PQL) J	ND(PQL) J

E. Blanks

Criteria

1.0 No contaminants should be present in the blank(s).

1.1 For each extracted batch, a method blank must be analyzed.

Action

Qualification of sample results due to blank contamination is dependent on the conditions and origin of the blank. No positive sample results are reported unless the concentration of the compound in the sample exceeds five times the amount in the blank. No sample results are corrected by subtracting blank values. Specific qualifications of sample data are as follows:

Step 1 - Review Form IV, or laboratory equivalent, within the data package to ensure that criteria IV.D.1.2 is in compliance. If they are not, the laboratory will be contacted by the reviewer for a written explanation.

Step 2 - Review Form I for all blanks within the data package.

Step 3 - When any compound is detected in the sample and the sample concentration is less than five times the concentration detected in the associated blank, the data are qualified as non-detect (ND).

Step 4 - If a compound is found in the blank but not in the sample, then the data are not qualified.

Note: Any difference between the sample analyses and the related blank analyses which involve weights, volumes, or dilution factors, must be taken into account when the 5-times criteria is applied.

The following are examples of how qualifications apply to blank data:

Example 1 (Step 3): When the sample result is greater than the PQL but less than the action level, the sample results are qualified as non-detects. As in the example below, the sample result is less than the blank action level (or 5 x 1); therefore, the sample result is qualified as non-detect.

Factor	5-times
Blank Result	1.0
PQL	0.5
Action Level	5.0
Sample Result	4.0
Qualified Sample Result	ND(4.0)

Example 2 (Step 4): When the sample result is greater than the blank action level, the sample result is not qualified. As in the example below, the sample result is greater than the blank action level and the sample result is not qualified.

Factor	5-times
Blank Result	1.0
PQL	0.5
Action Level	5.0
Sample Result	6.0
Qualified Sample Result	6.0

Step 5 - When excessive amounts of contamination exist (i.e., saturated peaks by ECD), all compounds affected are qualified as unusable (R).

F. Surrogate Recovery

Criteria

Sample and blank surrogate recoveries (TCMX and DCB for PCBs) must be within the control limits listed in Table 5 of the FSP/QAPP.

Action

Qualification of the data due to surrogate recoveries being out of control is based on the evaluation of all data provided in the data package, especially considering the complexity of the effect of sample matrices. These qualifications are completed in the following steps:

Step 1 - Surrogate recoveries tabulated on Form II, or laboratory equivalent, for each fraction are evaluated against the control limits provided in Table 5 of the FSP/QAPP.

Step 2 - If both TCMX and DCB recoveries are less than the lower control limit, all positive results are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question or (ii) reanalyzing the existing sample.

Step 3 - If both TCMX and DCB recoveries are less than the lower control limit but greater than 10%, all non-detected results are qualified as estimated (ND(PQL)J) and detected results are qualified as estimated (J).

Step 4 - If either TCMX or DCB recoveries are less than 10%, the non-detected results are qualified as unusable (R) and detected results are qualified as estimated (J).

Step 5 - If both TCMX and DCB recoveries are greater than the upper control limit, all positive results are qualified as estimated (J).

Qualification of Compounds Based on Surrogate Recovery Deviations

Sample Results	Recovery < 10%	10% ≤ %Recovery < LL	Lower QC Limit ≤ Recovery ≤ UL	Recovery > UL
Detects	J	J	-	J
Non-Detects	R	ND(PQL)J	-	-

LL- Lower limit of method QC acceptance criteria.

UL- Upper limit of method QC acceptance criteria.

G. Matrix Spike (MS)/Matrix Spike Duplicate (MSD)

Criteria

1.0 Spike recoveries must be within the control limits in Table 5 of the FSP/QAPP.

1.1 The RPD value between MS and MSD recoveries must be within the control limits specified in Table 5.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Action

If recovery results are not within the control limits, the following steps are taken to qualify the data:

Step 1 - If the recovery results are greater than the lower control limits presented in Table 5, the positive results for the compound are qualified as estimated (J)

Step 2 - If the recovery result is less than the lower control limit presented in Table 5, detect and/or non-detect sample results for the compound are qualified as estimated (J).

Step 3 - If the recovery result is less than 10%, the non-detects for that compound in the unspiked sample are qualified as rejected (R) and detects for that compound are qualified as estimated (J). This is the only instance that a non-detect is qualified due to recovery results being out of control.

Step 4 - If any of the RPD values are greater than the limits presented in Table 5, Detect and/or non-detect sample results for that compound are qualified as estimated (J) in the unspiked sample.

Qualification of Compounds Based on MS/MSD Recovery and MS/MSD RPD Deviations

Sample Results	Recovery < 10%	10% ≤ %Recovery < Lower QC Limit	Lower QC Limit ≤ Recovery ≤ Upper QC Limit	Recovery > Upper QC Limit	RPD > QC Limit
Detects	J	J	-	J	J
Non-Detects	R	ND(PQL)J	-	-	ND(PQL)J

H. Field Duplicates

Criteria

1.0 For air matrices, each compound with a detectable concentration two times greater than the PQL must have an RPD value that is less than 50%.

Action

Step 1 - Calculate all RPD values for positive results between the sample and the field duplicate.

$$\text{Calculation:} \quad RPD = \frac{\text{Sample Result - Field Duplicate}}{\text{(Sample Result + Field Duplicate)/2}} \times 100$$

Step 2 - If the RPD value is greater than 50% in an air matrix and both sample results are greater than two times the PQL, the result for that compound in both samples is qualified as estimated (J).

Step 3 - If both sample results are less than two times the PQL, qualification of the sample data is not required.

Step 4 - If one sample result is less than two times the PQL and the other is greater than two times the PQL, the result for that compound in both samples is qualified as estimated (J).

Qualification of Air Data Based on Field Duplicate RPD Deviations

RPD	**> 50%**	**> 50%**	**>50%**
Sample Results	Both duplicate sample concs. $\geq$ 2 times PQL	PQL $\leq$ both duplicate samples concs. < 2 times PQL and $\geq$ PQL	One sample conc. $\geq$ 2 times PQL and other sample conc. < 2 times PQL
Detects	J	-	J
Non-Detects	-	-	-

V. Tier III Validation Procedures

Tier III validation of a data package consists of the steps mentioned above for a Tier I and Tier II validation plus review of the "raw data" and recalculation of approximately 10% of the sample results. The compound identification, instrument performance, quantitation, and detection limits are also evaluated.

A. Compound Quantitation and Reported Quantitation Limits

Criteria

The quantitation of detected compounds and the adjustment of the PQL for dilutions must be recalculated for 10% of the data.

Action

Step 1 - If the criteria above have not been followed, the laboratory will be contacted by the reviewer and the laboratory will be responsible for a correction of the quantitation and resubmission of the reported data.

Step 2 - Quantitation limits affected by large, off-scale peaks are qualified as unusable (R).

Step 3 - If the interference is on-scale, the quantitation limit is qualified as estimated (J).

B. Instrument Performance

Criteria

The laboratory must report retention time window data on the PCB standards summary (Form X or laboratory equivalent) for each GC column used to analyze samples. Compounds must be within these retention time windows.

Action

Retention time windows are used in qualitative identification. If the sample results are not within the retention time windows, the following steps are taken to evaluate the data:

Step 1 - The chromatogram is reviewed to see if there are any peaks within an expanded window surrounding the expected retention time window of the compound of interest.

Step 2 - If there are no peaks present either within or close to the retention time window of the out of control targeted compound, then there is no qualification of the data. Non-detected results are considered valid.

Step 3 - If there are peaks present above or close to the PQL and either within or close to the retention time window of the out of control targeted compound, all positive data are qualified as unusable (R).

C. Compound Identification

Criteria

Reported compounds must be within calculated retention time windows for both chromatographic columns.

Action

The following steps are taken during the compound identification:

Step 1 - When the qualitative criteria for two-column confirmation are not met, all reported positive detects are reported as non-detects. The reviewer uses professional judgment and the following steps to report the appropriate quantitation limit:

a. If the misidentified peak was sufficiently outside the target compound retention time window, then the PQL is reported.

b. If the misidentified peak poses an interference with potential detection of a target peak, the reported value is qualified as the estimated (J) quantitation limit.

Step 2 - When PCBs exhibit marginal pattern-matching quality, the reviewer's professional judgment is used to confirm whether the differences are credited to environmental "weathering." If the presence of a PCB is strongly suggested, results are reported as being present.

Step 3 - When an observed pattern closely matches more than one Aroclor, professional judgment is used to decide whether the neighboring Aroclor is a better match, or if multiple Aroclors are present.

ARCADIS

Validation Annex G

Data Validation Procedures for Analyses of Volatile Organic Compounds (VOCs) and Semi-Volatile Compounds (SVOCs) in Indoor Air and Soil Gas Samples

Data Validation Procedures for Analyses of Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) in Indoor Air and Soil Gas Samples

I. Introduction

This Standard Operating Procedure (SOP) describes the data validation procedures for a United States Environmental Protection Agency (EPA) Region I tiered review of the air or soil gas sampling data for volatile organic compounds (VOCs) analyzed by EPA Methods TO-15 and/or TO-17 and the air or soil gas sampling data for semi-volatile organic compounds (SVOCs) analyzed by EPA Methods TO-15, TO-13A, and/or TO-17 (modified). (Data validation procedures for air or soil gas data analyzed for PCBs by Method TO-17 [modified] are provided in Validation Annex F.) Data review procedures presented in this SOP were developed from the applicable quality control criteria specified in the following documents:

- EPA Region I, *EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses* (July 1996, revised December 1996) (EPA Region I Guidelines);
- EPA, *Compendium Methods TO-13A, Determination of Polycyclic Aromatic Hydrocarbons (PAHs) in Ambient Air Using Gas Chromatography/Mass Spectrometry (GC/MS)* (January 1999);
- EPA, *Compendium Methods TO-15, Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)* (January 1999); and
- EPA, *Compendium Methods TO-17, Determination of Volatile Organic Compounds in Ambient Air Using Active Sampling Onto Sorbent Tubes (*January 1999) (modified for analyses of SVOCs and PCBs).

II. EPA Region I Tiered Validation Procedures

All VOC and SVOC analytical data will be validated to a Tier I level following the procedures presented in the EPA Region I Guidelines (cited above). The basic Tier I review consists of a completeness evidence audit to ensure that all laboratory data and documentation are present. Additionally, for projects subject to this FSP/QAPP, the Tier I review will be modified and expanded to include a number of elements of Tier II review, including review of each sample delivery group (SDG) to identify data deficiencies that may potentially result in qualification of the data (e.g., systematic deviations such as low calibration response factors). Based on this modified Tier I review, a subset of the data will be identified for additional Tier II review. If QA/QC deviations are identified during the modified Tier I review, those deviations will be addressed in the Tier II review. Otherwise, a minimum of 25% of the data will be chosen at random to be subjected to a Tier II review, which will consist of the Tier I completeness evidence audit and review of all data package summary forms for identification of QA/QC parameter deviations. The Tier II data review will be used to identify and evaluate systematic QA/QC deficiencies that may affect any or all of the sample data

presented in a specific data package. The Tier II data validation also includes an evaluation of field duplicate Relative Percent Difference (RPD) compliance. Additional Tier II review and Tier III (recalculation of sample results) review may also be performed for a larger portion of the data set, if required, to fully resolve data usability limitations identified during the modified Tier I data review and initial Tier II review for 25% of the data chosen at random.

The tiered data validation procedures consisting of modified Tier I review for all data, Tier II review of a minimum of 25% of the data, and additional Tier II and Tier III review, as required, will be used to evaluate compliance of each data set with the project-specific data quality objectives. The procedures presented in the following sections will be used to perform the Tier I, Tier II, and Tier III data validation reviews. Qualification of analytical data will also be performed, if required, as specified in the data validation protocols presented below.

III. Tier I Validation Procedures

Tier I validation of a data package consists of verifying that all raw data and forms are included and complete. An analytical data validation summary spreadsheet (in the form presented in Attachment A-2) is prepared to document the data review. The following steps are taken to complete a Tier I review:

Step 1 - Review the laboratory case narrative. During review, if there are any deviations that warrant a more extensive validation procedure, a Tier II review would be initiated to evaluate potential data use limitations.

Step 2 - Compare the chain-of-custody and the sample traffic reports. If there are any inconsistencies or if they are incomplete, then contact the laboratory for resolution.

Step 3 - Verify that all forms are present and complete. If any of the forms are not in the data package, contact the laboratory for a resubmission.

Note: If frequent or severe quality control deviations are present on the above-mentioned forms, a more extensive validation procedure may be warranted. Based on the reviewer's judgment, Tier II or Tier III review may be conducted to fully evaluate the usability of the data.

Step 4 - Verify that the following raw data is provided for each sample and associated QA/QC samples in the data package. Contact the laboratory to obtain missing data (if required):

- Case Narrative
- Chain-of-Custody Forms
- Traffic Reports

- QA Sample Summary Forms
- Instrument Calibration Summary Forms
- Instrument Run Logs
- Sample Preparation Logs
- Instrument/Method Detection Limits
- Standards Preparation Logs
- Supporting (raw) Data

Step 5 - With a blue ink pen, record on the first page of the data package: the validation level, date, and reviewer's initials.

In addition to the steps discussed above, the Tier I review of data packages for projects subject to this FSP/QAPP will be expanded to include some elements of Tier II review, including review of the data packages to identify QA/QC deficiencies that may require qualification of the data.

IV. Tier II Validation Procedures

Tier II validation of a data package consists of the steps mentioned above for a Tier I review, plus review of the data package summary forms for identification of QA/QC deviations. Tier II validation does not include review of the "raw data" or recalculation of sample results. Sample qualification is performed (if required) following EPA Region I Guidelines.

A. Data Qualifiers

All data qualified due to QA/QC deviations will be clearly recorded on the data summary package Form I, or laboratory equivalent, with a blue ink pen. The laboratory qualification is lined out and the reviewer's qualification placed next to it. The date and the initials of the reviewer will also be placed on Form I. Below is a list of qualifiers that may be used.

J The compound was positively identified, but the associated numerical value is an estimated concentration. This qualifier is used when the data evaluation procedure identifies a deficiency in the data generation process. This qualifier is also used when a compound or analyte is detected at estimated concentrations less than the practical quantitation limit (PQL). (When this qualifier is used in combination with the letter C -- i.e., JC -- that indicates that the sample result is an estimated concentration due to certain QC deficiencies and that a bias-corrected result is available, as discussed further below.)

ND The compound was analyzed for, but was not detected at the method detection limit. The sample PQL (which is normally the same as the reporting limit [RL]) is presented in parentheses and adjusted for dilution. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, non-detected sample results are displayed as ND(PQL). (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier U for non-detected compounds.)

ND J The compound was analyzed for and not detected, but the sample PQL (presented in parentheses and normally the same as the RL) is estimated and may or may not represented the actual level of quantitation. For consistency with the database and summary data tables in documents previously prepared for investigations at the GE-Pittsfield/Housatonic River Site, these non-detected sample results are displayed as ND(PQL)J. (This project-specific nomenclature differs from that in EPA guidance, which uses the qualifier UJ for non-detected compounds in this category.)

R Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data should not be used for any qualitative or quantitative purposes.

B. Holding Times

Criteria

1.0 TO-15 indoor air and soil gas samples are collected for VOC's in SUMMA® canisters (or equivalent) and must be received with a pressure of > 1" Hg and analyzed within 30 days of collection.

1.1 TO-13A indoor air and soil gas samples are collected in filtered cartridges containing PUF or XAD-2® (or equivalent) for polycyclic aromatic hydrocarbons (PAHs) after approximately 300 m^3 of air is passed through. Indoor air and soil gas samples and extracts must be preserved at 4° centigrade. Air samples must be extracted within seven days and extracts must be analyzed within 40 days.

1.2 TO-17 indoor air and soil gas samples are collected for VOCs and SVOCs in collection tubes containing one or a combination of sorbent packing materials. Indoor air and soil gas samples and extracts must be preserved at 4° centigrade. Air samples must be extracted within seven days and extracts must be analyzed within 40 days.

Action

Specific holding times for each analysis and sample type are presented in Table 1 of the FSP/QAPP. The following steps are performed for the validation of data due to holding times:

Step 1 - Establish the holding time by comparing the sampling date on the chain-of-custody with the dates of analysis and/or extraction on Form I, or laboratory equivalent. The chain-of-custody is also reviewed to determine if the samples were properly preserved.

Step 2 - If the holding times are exceeded by less than 24 hours, then no qualification of data is needed.

Step 3 - If the holding times are exceeded by more than 24 hours but less than 30 days, then all positive results are qualified as estimated (J) and the non-detected compounds are qualified as estimated (ND(PQL)J).

Step 4 - If the holding times are exceeded by more than twice the specified holding time, then all results are qualified as unusable (R).

C. GC/MS Tuning

Criteria

The following criteria must be met at all times:

1.0 Decafluorotriphenylphosphine (DFTPP)

m/z	Ion Abundance Criteria
51	30.0 - 60.0% of m/z 198
68	less than 2.0% of m/z 69
70	less than 2.0% of m/z 69
127	40.0 - 60.0% of m/z 198
197	less than 2.0% of m/z 198
198	base peak, 100% relative abundance
199	5.0 - 9.0% of m/z 198
275	10.0 - 30.0% of m/z 198
365	greater than 1.0% of m/z 198
441	present, but not less than m/z 443
442	greater than 40.0% of m/z 198
443	17.0 - 23.0% of m/z 442

1.1 Bromofluorobenzene (BFB)

m/z	Ion Abundance Criteria
50	8.0 - 40.0% of the base peak
75	30.0 - 66.0% of the base peak
95	base peak, 100% relative abundance
96	5.0 - 9.0% of the base peak
173	less than 2.0% of m/z 174
174	50.0% to 120.0%of the base peak
175	4.0 - 9.0% of m/z 174
176	greater than 93.0%, but <101.0% of m/z 174
177	5.0 - 9.0% of m/z 176

Action

Review Form V, or laboratory equivalent, to determine if a mass calibration is in error. If an error is identified, then all data associated with the evaluated spectra are qualified as unusable (R).

D. Calibration

Criteria

1.0 Initial Calibration for VOCs and SVOCs

1.0.1 All average Relative Response Factors (RRFs) for must be greater than or equal to 0.05.

1.0.2 All Percent Relative Standard Deviation (%RSD) values must be less than or equal to 30%.

1.1 Continuing Calibration VOCs and SVOCs

1.1.1 All daily RRFs must be greater than or equal to 0.05.

1.1.2 All Percent Difference (%D) values must be less than or equal to 30%.

Action

The following steps are performed by reviewing Forms VI and VII, or laboratory equivalents, during the validation of calibration data:

Step 1 - Verify that all the average RRFs for the initial calibration are greater than 0.05. If the average RRF is not in control, then:

a. All positive sample results for that compound are qualified as estimated (J).

b. All non-detected sample results for compounds that do not meet their analytical method defined RRF are qualified as unusable (R). Several of the organic compounds exhibit instrument RRFs that are below the USEPA Region I minimum value of 0.05, but meet the analytical method criterion, which does not specify minimum RRFs for these compounds. These compounds will be calibrated for by the laboratory at a higher concentration than the compounds that normally exhibit RRFs greater than the USEPA Region I minimum value of 0.05 in an effort to demonstrate acceptable response. USEPA Region I guidelines state that non-detected compound results associated with a RRFs less than the minimum value of 0.05 are to be rejected. In the case of these select organic compounds, where the RRFs are an inherent problem with the current analytical methodology; the non-detected samples results will be qualified as an estimate (J).

Step 2 - If use of data is critical, the average RRF will be calculated with the elimination of the low or high calibration standard. If the average RRF is in control with the elimination of the low calibration standard, then:

a. All non-detected sample results for that compound are adjusted to the lowest calibration standard used to calculate the acceptable average RRF.

b. All positive sample results for that compound which are below the lowest calibration standard used to calculate the acceptable average RRF are qualified as estimated (J).

If the average RRF is in control with the elimination of the high calibration standard, then:

a. All positive sample results for that compound which are above the highest calibration standard used to calculate the acceptable average RRF are qualified as estimated (J).

Step 3 - Verify that all %RSD values for the initial calibration are greater than 30%. If any %RSD is not in control, then all detected and non-detected sample results for that compound are qualified as estimated (J) and (ND(PQL)J), respectively.

Qualification of VOC/SVOC Compounds Based on Initial Calibration Deviations

Sample Results	Avg. RRF ≥ 0.05 and %RSD ≤ 30.0%	Avg. RRF < 0.05 and %RSD ≤ 30.0%	Avg. RRF ≥ 0.05 and %RSD > 30.0%	Avg. RRF < 0.05 and %RSD > 30.0%
Detects	-	J	J	J
Non-Detects	-	R or ND(PQL)J	ND(PQL)J	R or ND(PQL)J

Step 4 - Verify that all RRF values for the continuing calibration are greater than 0.05. If any continuing calibration RRF is not in control, then:

a. All positive sample results for that compound are qualified as estimated (J).

b. All non-detected sample results for are qualified as unusable (R). Several of the organic compounds exhibit instrument RRFs that are below the USEPA Region I minimum value of 0.05, but meet the analytical method criterion, which does not specify minimum RRFs for these compounds. These compounds will be calibrated for by the laboratory at a higher concentration than the compounds that normally exhibit RRFs greater than the USEPA Region I minimum value of 0.05 in an effort to demonstrate acceptable response. USEPA Region I guidelines state that non-detected compound results associated with a RRFs less than the minimum value of 0.05 are to be rejected. In the case of these select organic compounds, where the RRFs are an inherent problem with the current analytical methodology; the non-detected samples results will be qualified as an estimate (J).

Step 5 - Verify that all %D values are greater than 30%. If any %D is not in control, then all detected and non-detected sample results for that compound are qualified as estimated (J) and (ND(PQL)J), respectively.

Qualification of VOC/SVOC Compounds Based on Continuing Calibration Deviations

Sample Results	Avg. RRF ≥ 0.05 and %RSD ≤ 30.0%	Avg. RRF < 0.05 and %RSD ≤ 30.0%	Avg. RRF ≥ 0.05 and %RSD > 30.0%	Avg. RRF < 0.05 and %RSD > 30.0%
Detects	-	J	J	J
Non-Detects	-	R or ND(PQL)J	ND(PQL)J	R or ND(PQL)J

E. Blanks

Criteria

1.0 No contaminants should be present in the blank(s).

1.1 For each 24-hour window, a method blank must be analyzed for volatile analyses.

1.2 For each extracted batch, a method blank must be analyzed for semi-volatile analyses.

Action

Qualification of sample results due to blank contamination is dependent on the conditions and origin of the blank. No sample results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in the blank for the compounds listed below, or five times the blank amount for all other compounds. No sample results are corrected by subtracting blank values. Specific qualifications of sample data are as follows:

Step 1 - Review Form IV, or laboratory equivalent, within the data package to ensure that criteria III.E.1.1 and III.E.1.2 are in compliance. If they are not, the laboratory will be contacted by the reviewer for a written explanation.

Step 2 - Review Form I, or laboratory equivalent, for all blanks within the data package.

Step 3 - If a compound is found in the blank but not in the sample, then the data are not qualified.

Step 4 - When any compound (other than the five listed below) is detected in the sample and the sample concentration is less than five times the concentration detected in the associated blank, the data are qualified. For the following five compounds, the sample results are qualified if the sample concentration is less than 10 times the concentration detected in the blank.

Common laboratory contaminants:

a. Methylene chloride

b. Acetone

c. Toluene

d. 2-Butanone

e. Common phthalate esters

Note: Any difference between the sample analyses and the related blank analyses which involve weights, volumes, or dilution factors, must be taken into account when the 5-times or 10-times criteria are applied.

The following are examples of how qualifications apply to blank data:

a. When the sample result is greater than the PQL but less than the action level (5-times or 10-times) from the blank result, the sample results are qualified as non-detects. As in the example below, the sample result for the 10-times rule is less than 70 (or 10 x 7), and for the 5-times rule the result is less than 35 (or 5 x 7); therefore, they are qualified as described.

Factor	10-times	5-times
Blank Result	7	7
PQL	5	5
Action Level	70	35
Sample Result	60	30
Qualified Sample Result	ND(60)	ND(30)

b. When the sample result is less than the PQL and also less than the action level (5-times or 10-times) from the blank result, the sample results are qualified as non-detects by using the PQL as the detection limit. As in the example below, the sample result is less than the PQL in both instances and the sample results are qualified as described.

Factor	10-times	5-times
Blank Result	6	6
PQL	5	5
Action Level	60	30
Sample Result	4 J	4 J
Qualified Sample Result	ND(5)	ND(5)

c. When the sample result is greater than the blank action level (5-times or 10-times), the sample results are not qualified. As in the example below, the sample results are greater than the blank action level and the sample results are not qualified.

Factor	10-times	5-times
Blank Result	10	10
PQL	5	5
Action Level	100	50
Sample Result	120	60
Qualified Sample Result	120	60

Step 5 - When excessive amounts of contamination exist (i.e., saturated peaks by GC/MS), all compounds affected are qualified as unusable (R).

Note: As mentioned above, similar consideration is given to Tentatively Identified Compounds (TICs) which are found in both the sample and the associated blank(s).

F. Surrogate Recovery

Criteria

Surrogates are not required for VOCs in Method TO-15; however, if the laboratory includes surrogates in the analysis, the following action applies:

Sample and blank surrogate recoveries for VOCs and SVOCs must be within the control limits listed in Table 5 of the FSP/QAPP.

Action

Qualification of the data due to surrogate recoveries being out of control is based on the evaluation of all data provided in the data package, especially considering the complexity of the effect of sample matrices. These qualifications are completed in the following steps:

Step 1 - Surrogate recoveries tabulated on Form II, or laboratory equivalent, for each fraction are evaluated against the control limits provided in Table 5.

Step 2 - No qualification of the data is needed if less than two surrogates are out of control for the base/neutral or acid fraction, or one in the volatile fraction, or unless any surrogate has a recovery less than 10%.

Step 3 - If at least two surrogates in a base/neutral or acid fraction or one surrogate in the volatile fraction are out of control, the following steps are taken:

a. All positive results for that associated fraction with surrogate recoveries above the upper control limit are qualified as estimated (J).

b. All positive results for that associated fraction with a surrogate recovery that is less than the lower control limit are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) re-analyzing the existing sample; or (iii) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database.

c. All non-detected results associated with a surrogate recovery that is less than the lower control limit but greater than 10% are qualified as estimated (ND(PQL)J).

Step 4 - If any surrogate recoveries in a fraction are less than 10%, all non-detected results for that fraction are qualified as unusable (R).

Step 5 - When the blank analysis involves surrogate recoveries out of control, the related sample data are reviewed and qualified in the following manner:

a. If the sample data does not contain any surrogate out of control, then the data are not qualified.

b. If the sample data does contain a surrogate out of control, then the sample data are qualified as mentioned above in Steps 2 through 4.

Note: In this special circumstance, the problem is considered to be within the laboratory control and is so noted in the validation report.

Qualification of VOC/SVOC Compounds Based on Surrogate Recovery Deviations

Sample Results	One or more surrogates < 10%	One VOC, two B/N, or two Acid surrogates 10% ≤ %Rec < LL	All VOC, one B/N, or one Acid surrogate LL ≤ %Rec ≤ UL	Avg. RRF < 0.05 and %RSD > 25.0%
Detects	J	J	-	J
Non-Detects	R	ND(PQL)J	-	-

LL - Lower limit of method QC acceptance criteria.

UL - Upper limit of method QC acceptance criteria.

G. Field Duplicates

Criteria

1.0 For air matrices, each compound with a detectable concentration two times greater than the PQL must have an RPD value that is less than 50%.

Action

Step 1 - Calculate all RPD values for positive results between the sample and the field duplicate.

$$\text{Calculation: } RPD = \frac{\text{Sample Result - Field Duplicate}}{(\text{Sample Result + Field Duplicate})/2} \times 100$$

Step 2 - If the RPD value is greater than 50% in an air matrix and both sample results are greater than two times the PQL, the result for that compound in both samples is qualified as estimated (J).

Step 3 - If the both sample results are less than two times the PQL, qualification of the sample data is not required.

Step 4 - If the one sample result is less than two times the PQL and the other is greater than two times the PQL, the result for that compound in both samples is qualified as estimated (J).

Qualification of VOC/SVOC Compounds Based on Field Duplicate RPD Deviations

RPD	Air > 50%	Air > 50%	Air > 50%
Sample Results	Both duplicate sample concs. ≥ 2 times PQL	PQL ≤ both duplicate samples concs. < 2 times PQL and ≥ PQL	One sample conc. ≥ 2 times PQL and other sample conc. < 2 times PQL
Detects	J	-	J
Non-Detects	-	-	-

H. Internal Standards Performance

Criteria

1.0 Internal standard (IS) area counts must not vary by more than a factor of two (-50 to +100%) from the associated continuing calibration standard.

1.1 The retention time of the internal standard must not vary by more than +/- 30 seconds from the associated continuing calibration standard.

Action

Step 1 - Review the tabulated results for the comparison of the IS areas of the samples and the related continuing calibration standard on Form VIII, or laboratory equivalent. If an IS area is outside the -50 to +100% limits, the positive sample results quantitated using that IS are qualified as estimated (J) and one of the following steps will be taken: (i) collecting and analyzing a new sample from the location in question; (ii) re-analyzing the existing sample; or (iii) if the result would have no significant effect on achieving the applicable Performance Standard, simply maintaining the qualifier in the database.

Step 2 - If the IS areas of a sample and the related continuing calibration standard on Form VIII, or laboratory equivalent, are less than the -50% criteria but greater than -25%, then non-detected sample results are qualified as estimated (ND(PQL)J) for that sample fraction.

Step 3 - If the IS areas of a sample and the related continuing calibration standard on Form VIII, or laboratory equivalent, are less than -25%, then non-detected sample results are qualified as unusable (R) for that sample fraction.

Step 4 - If the IS areas of a sample and the related continuing calibration standard on Form VIII, or laboratory equivalent, are greater than the 100% criteria, then detected sample results are qualified as estimated (J) for that sample fraction.

Step 5 - Review the tabulated results for comparison of the IS Retention Time (RT) of the samples and the related continuing calibration standard on Form VIII, or laboratory equivalent. If an IS retention time varies by more than 30 seconds, the data are qualified as unusable (R).

Qualification of VOC/SVOC Compounds Based on Internal Standard Deviations

Sample Results	Area Counts < 25% of the associated calibration	25% ≤ Area Counts < LL	LL ≤ Area Counts ≤ LL	Area Counts > UL
Detects	J	J	-	J
Non-Detects	R	ND(PQL)J	-	-

LL - Lower limit of method QC acceptance criteria.

UL - Upper limit of method QC acceptance criteria.

V. Tier III Validation Procedures

Tier III validation of a data package consists of the steps mentioned above for a Tier I and Tier II validation plus review of the "raw data" and recalculation of approximately 10% of the sample results. The confirmation of detected compounds and tentatively identified compounds is also reviewed.

A. Compound Quantitation and Reported Quantitation Limits

Criteria

1.0 The quantitation of detected compounds and the adjustment of the PQL for dilutions must be recalculated for 10% of the data.

1.1 The compound's RRF and sample result quantitation must be calculated based on the IS specified in Tables A-1 and A-2.

Action

If the criteria above have not been followed, the laboratory will be contacted by the reviewer and the laboratory will be responsible for a correction of the quantitation and resubmission of the reported data.

B. Detected Identification

Criteria

1.0 Compounds must be within +/- 0.06 Relative Retention Time (RRT) units of the continuing calibration standard RRT.

1.1 Mass spectra of the sample compound and of the current reference spectra must match the following criteria:

1.1.1 All ions present in the reference spectra must be at a relative intensity greater than 10% and must be present in the sample spectrum.

1.1.2 The relative intensities of the ions specified above must agree within +/- 20% (absolute) between the reference and sample spectrum (example: for an ion with an abundance of 50% in the reference spectrum, the corresponding sample ion abundance must be between 30% and 70%).

1.1.3 Ions greater than 10% in the sample spectrum but not present in the reference spectrum must be considered and accounted for.

1.1.4 If a compound cannot be verified by all of the above criteria, but in the technical judgment of the mass spectral interpretation specialist the identification is correct, the laboratory will report the identification and continue with the quantitation.

Action

Professional judgment is used for the qualitative criteria for GC/MS analysis of target compounds. If it is determined that the wrong identification was made, all such data are qualified as not detected (ND).

C. Tentatively Identified Compounds (TICs)

Criteria

1.0 For each sample, the laboratory may conduct a mass spectral search of the NBS library. Report the possible identity of the 10 largest VOC fraction peaks and the 20 largest SVOC fraction peaks which are not surrogate, internal standard, or target compounds, but which have an area/height that is greater than 10% of the size of the nearest internal standard. TIC results, if reported by the laboratory, will be reported for each sample on Organic Analyses Data Sheet (Form I, TIC), or laboratory equivalent.

1.1 Requirements for the tentative identification are as follows:

1.1.1 Major ions (greater than 10% relative intensity) in the reference spectrum should be present in the sample spectrum.

1.1.2 Relative intensities of the major ions should agree within +/- 20% between the sample and the reference spectra.

1.1.3 Molecular ions present in the reference spectrum should be present in the sample spectrum.

1.1.4 Ions present in the sample spectrum but not in the reference spectrum should be reviewed for possible background contamination, interference, or coelution of additional TIC or target compounds.

1.2 When the above criteria are not met, but in the technical judgment of the data reviewer or the mass spectral interpretation specialist the identification is correct, the data reviewer may report the identification.

Action

The following steps are taken in qualifying the TICs if they are reported by the laboratory:

Step 1 - Review Form I, or laboratory equivalent, to verify that all TIC results are qualified as estimated concentrations (J).

Step 2 - If it is determined that the tentative identification of a compound is not acceptable, the tentative identification is changed to "unknown" or the correct compound identification.

Step 3 - If all of the required peaks are not searched, the laboratory is contacted to complete the library search of that sample.

Step 4 - Any TIC results that are not sufficiently above the level in the blank are not reported.

Note: Dilutions and sample size must be taken into account when comparing the amounts present in the blanks and samples.

Step 5 - When a compound is not found in the blanks but is a suspected artifact of a common laboratory contaminant, the sample result is qualified as unusable (R).

Step 6 - In the identification of TICs, professional judgment is used. In case there is more than one reasonable match, the result will be reported as "either compound X or compound Y." If the results lack isomer specificity, the TIC result is changed to a non-specific isomer result (e.g., 1,3,5-trimethyl benzene to trimethyl benzene isomer) or to the class of compound (e.g., 2-methyl-3-ethyl benzene to substituted aromatic).

Step 7 - If a sample's TIC match is poor but other samples from the data package have the same TIC with an acceptable match, that identification information may be used to identify the TIC result.

Attachments

Provided on CD

NEW YORK STATE DEPARTMENT OF HEALTH
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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DAN PFALZER
Pace Analytical Services, Inc.
2190 TECHNOLOGY DRIVE
SCHENECTADY, NY 12308

NY Lab Id No: 11078

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Fuel Additives	
Methyl tert-butyl ether	EPA 502.2/ SEE ITEM 198.5
Volatile Aromatics	
1,2,3-Trichlorobenzene	EPA 502.2
1,2,4-Trichlorobenzene	EPA 502.2
1,2,4-Trimethylbenzene	EPA 502.2
1,2-Dichlorobenzene	EPA 502.2
1,3,5-Trimethylbenzene	EPA 502.2
1,3-Dichlorobenzene	EPA 502.2
1,4-Dichlorobenzene	EPA 502.2
2-Chlorotoluene	EPA 502.2
4-Chlorotoluene	EPA 502.2
Benzene	EPA 502.2
Bromobenzene	EPA 502.2
Chlorobenzene	EPA 502.2
Ethyl benzene	EPA 502.2
Hexachlorobutadiene	EPA 502.2
Isopropylbenzene	EPA 502.2
n-Butylbenzene	EPA 502.2
n-Propylbenzene	EPA 502.2
p-Isopropyltoluene (P-Cymene)	EPA 502.2
sec-Butylbenzene	EPA 502.2
Styrene	EPA 502.2
tert-Butylbenzene	EPA 502.2
Toluene	EPA 502.2
Total Xylenes	EPA 502.2
Volatile Halocarbons	
Tetrachloroethene	EPA 502.2
Trichloroethene	EPA 502.2

Serial No.: 48519

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All approved analytes are listed below:

Acrylates	
Acrylonitrile	EPA 8260B
Amines	
2-Nitroaniline	EPA 8270C
3-Nitroaniline	EPA 8270C
4-Chloroaniline	EPA 8270C
4-Nitroaniline	EPA 8270C
Aniline	EPA 8270C
Carbazole	EPA 8270C
Pyridine	EPA 8270C
Benzidines	
3,3'-Dichlorobenzidine	EPA 625
	EPA 8270C
Benzidine	EPA 625
	EPA 8270C
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 608
	EPA 8081A
4,4'-DDE	EPA 608
	EPA 8081A
4,4'-DDT	EPA 608
	EPA 8081A
Aldrin	EPA 608
	EPA 8081A
alpha-BHC	EPA 608

Chlorinated Hydrocarbon Pesticides	
alpha-BHC	EPA 8081A
alpha-Chlordane	EPA 8081A
beta-BHC	EPA 608
	EPA 8081A
Chlordane Total	EPA 608
	EPA 8081A
delta-BHC	EPA 608
	EPA 8081A
Dieldrin	EPA 608
	EPA 8081A
Endosulfan I	EPA 608
	EPA 8081A
Endosulfan II	EPA 608
	EPA 8081A
Endosulfan sulfate	EPA 608
	EPA 8081A
Endrin	EPA 608
	EPA 8081A
Endrin aldehyde	EPA 608
	EPA 8081A
Endrin Ketone	EPA 8081A
gamma-Chlordane	EPA 8081A
Heptachlor	EPA 608
	EPA 8081A
Heptachlor epoxide	EPA 608
	EPA 8081A

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All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides	
Lindane	EPA 608
	EPA 8081A
Methoxychlor	EPA 608
	EPA 8081A
Mirex	EPA 8081A
Toxaphene	EPA 608
	EPA 8081A
Chlorinated Hydrocarbons	
1,2,3-Trichlorobenzene	EPA 8260B
1,2,4,5-Tetrachlorobenzene	EPA 8270C
1,2,4-Trichlorobenzene	EPA 625
	EPA 8270C
2-Chloronaphthalene	EPA 625
	EPA 8270C
Hexachlorobenzene	EPA 625
	EPA 8081A
	EPA 8270C
Hexachlorobutadiene	EPA 625
	EPA 8270C
Hexachlorocyclopentadiene	EPA 625
	EPA 8270C
Hexachloroethane	EPA 625
	EPA 8270C
Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 1978 p.115
Chlorophenoxy Acid Pesticides	
2,4,5-TP (Silvex)	EPA 1978 p.115
2,4-D	EPA 1978 p.115
Demand	
Biochemical Oxygen Demand	SM 18-21 5210B (01)
Carbonaceous BOD	SM 18-21 5210B (01)
Chemical Oxygen Demand	HACH 8000
Fuel Oxygenates	
Ethanol	EPA 8260B
Methyl tert-butyl ether	EPA 8260B
tert-amyl alcohol	EPA 8260B
tert-amyl methyl ether (TAME)	EPA 8260B
tert-butyl alcohol	EPA 8260B
tert-butyl ethyl ether (ETBE)	EPA 8260B
Haloethers	
4-Bromophenylphenyl ether	EPA 625
	EPA 8270C
4-Chlorophenylphenyl ether	EPA 625
	EPA 8270C
Bis(2-chloroethoxy)methane	EPA 625
	EPA 8270C
Bis(2-chloroethyl)ether	EPA 625
	EPA 8270C
Bis(2-chloroisopropyl) ether	EPA 625
	EPA 8270C

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Low Level Polynuclear Aromatics	
Acenaphthene Low Level	EPA 8270D SIM
Acenaphthylene Low Level	EPA 8270D SIM
Anthracene Low Level	EPA 8270D SIM
Benzo(a)anthracene Low Level	EPA 8270D SIM
Benzo(a)pyrene Low Level	EPA 8270D SIM
Benzo(b)fluoranthene Low Level	EPA 8270D SIM
Benzo(g,h,i)perylene Low Level	EPA 8270D SIM
Benzo(k)fluoranthene Low Level	EPA 8270D SIM
Chrysene Low Level	EPA 8270D SIM
Dibenzo(a,h)anthracene Low Level	EPA 8270D SIM
Fluoranthene Low Level	EPA 8270D SIM
Fluorene Low Level	EPA 8270D SIM
Indeno(1,2,3-cd)pyrene Low Level	EPA 8270D SIM
Naphthalene Low Level	EPA 8270D SIM
Phenanthrene Low Level	EPA 8270D SIM
Pyrene Low Level	EPA 8270D SIM
Mineral	
Alkalinity	SM 18-21 2320B (97)
Calcium Hardness	EPA 200.7 Rev. 4.4
Chloride	EPA 300.0 Rev. 2.1
Fluoride, Total	EPA 300.0 Rev. 2.1
Hardness, Total	EPA 200.7 Rev. 4.4
Sulfate (as SO4)	EPA 300.0 Rev. 2.1
Nitroaromatics and Isophorone	
2,4-Dinitrotoluene	EPA 625
Nitroaromatics and Isophorone	
2,4-Dinitrotoluene	EPA 8270C
2,6-Dinitrotoluene	EPA 625
	EPA 8270C
Isophorone	EPA 625
	EPA 8270C
Nitrobenzene	EPA 625
	EPA 8270C
Nitrosoamines	
N-Nitrosodi-n-propylamine	EPA 625
	EPA 8270C
N-Nitrosodiphenylamine	EPA 625
	EPA 8270C
Nutrient	
Ammonia (as N)	EPA 350.1 Rev. 2.0
Kjeldahl Nitrogen, Total	EPA 351.2 Rev. 2.0
Nitrate (as N)	EPA 353.2 Rev. 2.0
Nitrite (as N)	EPA 353.2 Rev. 2.0
Orthophosphate (as P)	SM 18-21 4500-P E
Phosphorus, Total	SM 18-21 4500-P E
Organophosphate Pesticides	
Atrazine	EPA 8270C
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015B
Gasoline Range Organics	EPA 8015B

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All approved analytes are listed below:

Phthalate Esters	
Benzyl butyl phthalate	EPA 625
	EPA 8270C
Bis(2-ethylhexyl) phthalate	EPA 625
	EPA 8270C
Diethyl phthalate	EPA 625
	EPA 8270C
Dimethyl phthalate	EPA 625
	EPA 8270C
Di-n-butyl phthalate	EPA 625
	EPA 8270C
Di-n-octyl phthalate	EPA 625
	EPA 8270C
Polychlorinated Biphenyls	
PCB 1	EPA 8082
PCB 104	EPA 8082
PCB 105	EPA 8082
PCB 114	EPA 8082
PCB 118	EPA 8082
PCB 123	EPA 8082
PCB 126	EPA 8082
PCB 127	EPA 8082
PCB 128	EPA 8082
PCB 15	EPA 8082
PCB 155	EPA 8082
PCB 156	EPA 8082

Polychlorinated Biphenyls	
PCB 157	EPA 8082
PCB 167	EPA 8082
PCB 169	EPA 8082
PCB 184	EPA 8082
PCB 188	EPA 8082
PCB 189	EPA 8082
PCB 19	EPA 8082
PCB 195	EPA 8082
PCB 202	EPA 8082
PCB 205	EPA 8082
PCB 208	EPA 8082
PCB 209	EPA 8082
PCB 28	EPA 8082
PCB 3	EPA 8082
PCB 37	EPA 8082
PCB 4	EPA 8082
PCB 49	EPA 8082
PCB 54	EPA 8082
PCB 77	EPA 8082
PCB 8	EPA 8082
PCB 81	EPA 8082
PCB-1016	EPA 608
	EPA 8082
	SOP NE273 Rev. 1.0
PCB-1221	EPA 608
	EPA 8082

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Polychlorinated Biphenyls	
PCB-1221	SOP NE273 Rev. 1.0
PCB-1232	EPA 608
	EPA 8082
	SOP NE273 Rev. 1.0
PCB-1242	EPA 608
	EPA 8082
	SOP NE273 Rev. 1.0
PCB-1248	EPA 608
	EPA 8082
	SOP NE273 Rev. 1.0
PCB-1254	EPA 608
	EPA 8082
	SOP NE273 Rev. 1.0
PCB-1260	EPA 608
	EPA 8082
	SOP NE273 Rev. 1.0
PCB-1262	EPA 8082
PCB-1268	EPA 8082
Polynuclear Aromatics	
Acenaphthene	EPA 625
	EPA 8270C
Acenaphthylene	EPA 625
	EPA 8270C
Anthracene	EPA 625
	EPA 8270C

Polynuclear Aromatics	
Benzo(a)anthracene	EPA 625
	EPA 8270C
Benzo(a)pyrene	EPA 625
	EPA 8270C
Benzo(b)fluoranthene	EPA 625
	EPA 8270C
Benzo(ghi)perylene	EPA 625
	EPA 8270C
Benzo(k)fluoranthene	EPA 625
	EPA 8270C
Chrysene	EPA 625
	EPA 8270C
Dibenzo(a,h)anthracene	EPA 625
	EPA 8270C
Fluoranthene	EPA 625
	EPA 8270C
Fluorene	EPA 625
	EPA 8270C
Indeno(1,2,3-cd)pyrene	EPA 625
	EPA 8270C
Naphthalene	EPA 625
	EPA 8270C
Phenanthrene	EPA 625
	EPA 8270C
Pyrene	EPA 625
	EPA 8270C

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Priority Pollutant Phenols	
2,4,6-Trichlorophenol	EPA 625
	EPA 8270C
2,4,6-Trichlorophenol	EPA 625
	EPA 8270C
2,4-Dichlorophenol	EPA 625
	EPA 8270C
2,4-Dimethylphenol	EPA 625
	EPA 8270C
2,4-Dinitrophenol	EPA 625
	EPA 8270C
2-Chlorophenol	EPA 625
	EPA 8270C
2-Methyl-4,6-dinitrophenol	EPA 625
	EPA 8270C
2-Methylphenol	EPA 8270C
2-Nitrophenol	EPA 625
	EPA 8270C
3-Methylphenol	EPA 8270C
4-Chloro-3-methylphenol	EPA 625
	EPA 8270C
4-Methylphenol	EPA 8270C
4-Nitrophenol	EPA 625
	EPA 8270C
Cresols, Total	EPA 8270C
Pentachlorophenol	EPA 625
	EPA 8270C
Priority Pollutant Phenols	
Phenol	EPA 625
	EPA 8270C
Residue	
Settleable Solids	SM 18-21 2540 F (97)
Solids, Total	SM 18-21 2540B (97)
Solids, Total Dissolved	SM 18-21 2540C (97)
Solids, Total Suspended	SM 18-21 2540D (97)
Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270C
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C
1,4-Dichlorobenzene, Semi-volatile	EPA 8270C
2-Methylnaphthalene	EPA 8270C
Acetophenone	EPA 8270C
Benzaldehyde	EPA 8270C
Caprolactam	EPA 8270C
Dibenzofuran	EPA 8270C
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260B
1,2,4-Trimethylbenzene	EPA 8260B
1,2-Dichlorobenzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013
Revised May 13, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DAN PFALZER
Pace Analytical Services, Inc.
2190 TECHNOLOGY DRIVE
SCHENECTADY, NY 12308

NY Lab Id No: 11078

Is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Volatile Aromatics	
1,3,5-Trimethylbenzene	EPA 8260B
1,3-Dichlorobenzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
1,4-Dichlorobenzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
2-Chlorotoluene	EPA 8021B
	EPA 8260B
4-Chlorotoluene	EPA 8021B
	EPA 8260B
Benzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Bromobenzene	EPA 8260B
Chlorobenzene	EPA 624
	EPA 8021B
	EPA 8260B
Ethyl benzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Isopropylbenzene	EPA 8260B

Volatile Aromatics	
Naphthalene, Volatile	EPA 8260B
n-Butylbenzene	EPA 8260B
n-Propylbenzene	EPA 8260B
p-Isopropyltoluene (P-Cymene)	EPA 8260B
sec-Butylbenzene	EPA 8260B
Styrene	EPA 8260B
tert-Butylbenzene	EPA 8260B
Toluene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Total Xylenes	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260B
1,1,1-Trichloroethane	EPA 624
	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 624
	EPA 8260B
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
1,1,2-Trichloroethane	EPA 624
	EPA 8260B
1,1-Dichloroethane	EPA 624

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Volatile Halocarbons	
1,1-Dichloroethane	EPA 8260B
1,1-Dichloroethene	EPA 624
	EPA 8260B
1,1-Dichloropropene	EPA 8260B
1,2,3-Trichloropropane	EPA 8260B
1,2-Dibromo-3-chloropropane	EPA 8260B
1,2-Dibromoethane	EPA 8260B
1,2-Dichloroethane	EPA 624
	EPA 8260B
1,2-Dichloropropane	EPA 624
	EPA 8260B
1,3-Dichloropropane	EPA 8260B
2,2-Dichloropropane	EPA 8260B
2-Chloroethylvinyl ether	EPA 624
	EPA 8260B
Bromochloromethane	EPA 8260B
Bromodichloromethane	EPA 624
	EPA 8260B
Bromoform	EPA 624
	EPA 8260B
Bromomethane	EPA 624
	EPA 8260B
Carbon tetrachloride	EPA 624
	EPA 8260B
Chloroethane	EPA 624
	EPA 8260B

Volatile Halocarbons	
Chloroform	EPA 624
	EPA 8260B
Chloromethane	EPA 624
	EPA 8260B
cis-1,2-Dichloroethene	EPA 624
	EPA 8260B
cis-1,3-Dichloropropene	EPA 624
	EPA 8260B
Dibromochloromethane	EPA 624
	EPA 8260B
Dibromomethane	EPA 8260B
Dichlorodifluoromethane	EPA 624
	EPA 8260B
Hexachlorobutadiene, Volatile	EPA 8260B
Methylene chloride	EPA 624
	EPA 8260B
Tetrachloroethene	EPA 624
	EPA 8021B
	EPA 8260B
trans-1,2-Dichloroethene	EPA 624
	EPA 8260B
trans-1,3-Dichloropropene	EPA 624
	EPA 8260B
trans-1,4-Dichloro-2-butene	EPA 8260B
Trichloroethene	EPA 624
	EPA 8021B

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All approved analytes are listed below:

Volatile Halocarbons	
Trichloroethene	EPA 8260B
Trichlorofluoromethane	EPA 624
	EPA 8260B
Vinyl chloride	EPA 624
	EPA 8260B
Volatiles Organics	
1,4-Dioxane	EPA 8260B
2-Butanone (Methylethyl ketone)	EPA 8260B
2-Hexanone	EPA 8260B
4-Methyl-2-Pentanone	EPA 8260B
Acetone	EPA 8260B
Carbon Disulfide	EPA 8260B
Cyclohexane	EPA 8260B
Methyl acetate	EPA 8260B
Methyl cyclohexane	EPA 8260B
Vinyl acetate	EPA 8260B
Wastewater Metals I	
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Calcium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Wastewater Metals I	
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Iron, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Lead, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Magnesium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Potassium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Sodium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Strontium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Wastewater Metals II	
Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Antimony, Total	EPA 200.7 Rev. 4.4
	EPA 6010B

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All approved analytes are listed below:

Wastewater Metals II	
Arsenic, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Chromium VI	EPA 7196A
	SM 18-19 3500-Cr D
	SM 20-21 3500-Cr B (01)
Mercury, Total	EPA 245.1 Rev. 3.0
	EPA 7470A
Selenium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Wastewater Metals III	
Cobalt, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Molybdenum, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Thallium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Tin, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Titanium, Total	EPA 200.7 Rev. 4.4

Wastewater Metals III	
Titanium, Total	EPA 6010B
Wastewater Miscellaneous	
Boron, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Bromide	EPA 300.0 Rev. 2.1
Cyanide, Total	EPA 9014
Oil and Grease Total Recoverable (HEM	EPA 1664A
	EPA 9070 (Solvent:Hexane)
Organic Carbon, Total	SM 18-21 5310B (00)
Phenols	EPA 420.4 Rev. 1.0
	LACHAT 10-210-00-1-A
Specific Conductance	EPA 120.1 Rev. 1982
Turbidity	EPA 180.1 Rev. 2.0
Sample Preparation Methods	
	EPA 200.2
	EPA 3005A
	EPA 3010A
	EPA 3015
	EPA 3020A
	EPA 3510C
	EPA 3511
	EPA 3520C
	EPA 3535
	EPA 5030B
	EPA 9010C

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All approved analytes are listed below:

Acrylates	
Acrylonitrile	EPA 8260B
Amines	
2-Nitroaniline	EPA 8270C
3-Nitroaniline	EPA 8270C
4-Chloroaniline	EPA 8270C
4-Nitroaniline	EPA 8270C
Aniline	EPA 8270C
Carbazole	EPA 8270C
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270C
Characteristic Testing	
Corrosivity	EPA 9040C
	EPA 9045D
Free Liquids	EPA 9095B
Ignitability	EPA 1010A
	EPA 1030
Synthetic Precipitation Leaching Proc.	EPA 1312
TCLP	EPA 1311
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081A
4,4'-DDE	EPA 8081A
4,4'-DDT	EPA 8081A
Aldrin	EPA 8081A
alpha-BHC	EPA 8081A

Chlorinated Hydrocarbon Pesticides	
Atrazine	EPA 8270C
beta-BHC	EPA 8081A
Chlordane Total	EPA 8081A
delta-BHC	EPA 8081A
Dieldrin	EPA 8081A
Endosulfan I	EPA 8081A
Endosulfan II	EPA 8081A
Endosulfan sulfate	EPA 8081A
Endrin	EPA 8081A
Endrin aldehyde	EPA 8081A
Endrin Ketone	EPA 8081A
Heptachlor	EPA 8081A
Heptachlor epoxide	EPA 8081A
Lindane	EPA 8081A
Methoxychlor	EPA 8081A
Pentachloronitrobenzene	EPA 8270C
Toxaphene	EPA 8081A
Chlorinated Hydrocarbons	
1,2,3-Trichlorobenzene	EPA 8260B
1,2,4,5-Tetrachlorobenzene	EPA 8270C
1,2,4-Trichlorobenzene	EPA 8270C
2-Chloronaphthalene	EPA 8270C
Hexachlorobenzene	EPA 8270C
Hexachlorobutadiene	EPA 8270C
Hexachlorocyclopentadiene	EPA 8270C

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All approved analytes are listed below:

Chlorinated Hydrocarbons	
Hexachloroethane	EPA 8270C
Haloethers	
4-Bromophenylphenyl ether	EPA 8270C
4-Chlorophenylphenyl ether	EPA 8270C
Bis(2-chloroethoxy)methane	EPA 8270C
Bis(2-chloroethyl)ether	EPA 8270C
Bis(2-chloroisopropyl) ether	EPA 8270C
Low Level Polynuclear Aromatic Hydrocarbons	
Acenaphthene Low Level	EPA 8270D SIM
Acenaphthylene Low Level	EPA 8270D SIM
Anthracene Low Level	EPA 8270D SIM
Benzo(a)anthracene Low Level	EPA 8270D SIM
Benzo(a)pyrene Low Level	EPA 8270D SIM
Benzo(b)fluoranthene Low Level	EPA 8270D SIM
Benzo(g,h,i)perylene Low Level	EPA 8270D SIM
Benzo(k)fluoranthene Low Level	EPA 8270D SIM
Chrysene Low Level	EPA 8270D SIM
Dibenzo(a,h)anthracene Low Level	EPA 8270D SIM
Fluoranthene Low Level	EPA 8270D SIM
Fluorene Low Level	EPA 8270D SIM
Indene(1,2,3-cd)pyrene Low Level	EPA 8270D SIM
Naphthalene Low Level	EPA 8270D SIM
Phenanthrene Low Level	EPA 8270D SIM
Pyrene Low Level	EPA 8270D SIM

Metals I	
Barium, Total	EPA 6010B
Cadmium, Total	EPA 6010B
Calcium, Total	EPA 6010B
Chromium, Total	EPA 6010B
Copper, Total	EPA 6010B
Iron, Total	EPA 6010B
Lead, Total	EPA 6010B
Magnesium, Total	EPA 6010B
Manganese, Total	EPA 6010B
Nickel, Total	EPA 6010B
Potassium, Total	EPA 6010B
Silver, Total	EPA 6010B
Sodium, Total	EPA 6010B
Metals II	
Aluminum, Total	EPA 6010B
Antimony, Total	EPA 6010B
Arsenic, Total	EPA 6010B
Beryllium, Total	EPA 6010B
Lithium, Total	EPA 6010B
Mercury, Total	EPA 7471A
Selenium, Total	EPA 6010B
Vanadium, Total	EPA 6010B
Zinc, Total	EPA 6010B
Metals III	
Cobalt, Total	EPA 6010B

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All approved analytes are listed below:

Metals III	
Molybdenum, Total	EPA 6010B
Thallium, Total	EPA 6010B
Tin, Total	EPA 6010B
Titanium, Total	EPA 6010B
Miscellaneous	
Boron, Total	EPA 6010B
Cyanide, Total	EPA 9014
Organic Carbon, Total	Lloyd Kahn Method
Nitroaromatics and Isophorone	
2,4-Dinitrotoluene	EPA 8270C
2,6-Dinitrotoluene	EPA 8270C
Isophorone	EPA 8270C
Nitrobenzene	EPA 8270C
Pyridine	EPA 8270C
Nitrosoamines	
N-Nitrosodi-n-propylamine	EPA 8270C
N-Nitrosodiphenylamine	EPA 8270C
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015B
Gasoline Range Organics	EPA 8015B
Oil and Grease Total Recoverable (HEM	EPA 9071 (Solvent:Hexane)
Phthalate Esters	
Benzyl butyl phthalate	EPA 8270C
Phthalate Esters	
Bis(2-ethylhexyl) phthalate	EPA 8270C
Diethyl phthalate	EPA 8270C
Dimethyl phthalate	EPA 8270C
Di-n-butyl phthalate	EPA 8270C
Di-n-octyl phthalate	EPA 8270C
Polychlorinated Biphenyls	
PCB 1	EPA 8082
PCB 104	EPA 8082
PCB 105	EPA 8082
PCB 114	EPA 8082
PCB 118	EPA 8082
PCB 123	EPA 8082
PCB 126	EPA 8082
PCB 128	EPA 8082
PCB 15	EPA 8082
PCB 155	EPA 8082
PCB 156	EPA 8082
PCB 157	EPA 8082
PCB 167	EPA 8082
PCB 169	EPA 8082
PCB 188	EPA 8082
PCB 189	EPA 8082
PCB 19	EPA 8082
PCB 202	EPA 8082
PCB 205	EPA 8082

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Polychlorinated Biphenyls	
PCB 208	EPA 8082
PCB 209	EPA 8082
PCB 3	EPA 8082
PCB 37	EPA 8082
PCB 4	EPA 8082
PCB 49	EPA 8082
PCB 54	EPA 8082
PCB 77	EPA 8082
PCB 81	EPA 8082
PCB-1016	EPA 8082
PCB-1221	EPA 8082
PCB-1232	EPA 8082
PCB-1242	EPA 8082
PCB-1248	EPA 8082
PCB-1254	EPA 8082
PCB-1260	EPA 8082
Polynuclear Aromatic Hydrocarbons	
Acenaphthene	EPA 8270C
Acenaphthylene	EPA 8270C
Anthracene	EPA 8270C
Benzo(a)anthracene	EPA 8270C
Benzo(a)pyrene	EPA 8270C
Benzo(b)fluoranthene	EPA 8270C
Benzo(ghi)perylene	EPA 8270C
Benzo(k)fluoranthene	EPA 8270C
Polynuclear Aromatic Hydrocarbons	
Chrysene	EPA 8270C
Dibenzo(a,h)anthracene	EPA 8270C
Fluoranthene	EPA 8270C
Fluorene	EPA 8270C
Indeno(1,2,3-cd)pyrene	EPA 8270C
Naphthalene	EPA 8270C
Phenanthrene	EPA 8270C
Pyrene	EPA 8270C
Priority Pollutant Phenols	
2,4,5-Trichlorophenol	EPA 8270C
2,4,6-Trichlorophenol	EPA 8270C
2,4-Dichlorophenol	EPA 8270C
2,4-Dimethylphenol	EPA 8270C
2,4-Dinitrophenol	EPA 8270C
2-Chlorophenol	EPA 8270C
2-Methyl-4,6-dinitrophenol	EPA 8270C
2-Methylphenol	EPA 8270C
2-Nitrophenol	EPA 8270C
4-Chloro-3-methylphenol	EPA 8270C
4-Nitrophenol	EPA 8270C
Pentachlorophenol	EPA 8270C
Phenol	EPA 8270C
Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270C
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C

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All approved analytes are listed below:

Semi-Volatile Organics	
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C
1,4-Dichlorobenzene, Semi-volatile	EPA 8270C
2-Methylnaphthalene	EPA 8270C
Acetophenone	EPA 8270C
Benzaldehyde	EPA 8270C
Caprolactam	EPA 8270C
Dibenzofuran	EPA 8270C
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260B
1,2,4-Trimethylbenzene	EPA 8260B
1,2-Dichlorobenzene	EPA 8260B
1,3,5-Trimethylbenzene	EPA 8260B
1,3-Dichlorobenzene	EPA 8260B
1,4-Dichlorobenzene	EPA 8260B
2-Chlorotoluene	EPA 8260B
4-Chlorotoluene	EPA 8260B
Benzene	EPA 8260B
Bromobenzene	EPA 8260B
Chlorobenzene	EPA 8260B
Ethyl benzene	EPA 8260B
Isopropylbenzene	EPA 8260B
Naphthalene, Volatile	EPA 8260B
n-Butylbenzene	EPA 8260B
n-Propylbenzene	EPA 8260B
p-Isopropyltoluene (P-Cymene)	EPA 8260B
Volatile Aromatics	
sec-Butylbenzene	EPA 8260B
Styrene	EPA 8260B
tert-Butylbenzene	EPA 8260B
Toluene	EPA 8260B
Total Xylenes	EPA 8260B
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260B
1,1,1-Trichloroethane	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 8260B
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
1,1,2-Trichloroethane	EPA 8260B
1,1-Dichloroethane	EPA 8260B
1,1-Dichloroethene	EPA 8260B
1,1-Dichloropropene	EPA 8260B
1,2,3-Trichloropropane	EPA 8260B
1,2-Dibromo-3-chloropropane	EPA 8260B
1,2-Dibromoethane	EPA 8260B
1,2-Dichloroethane	EPA 8260B
1,2-Dichloropropane	EPA 8260B
1,3-Dichloropropane	EPA 8260B
2,2-Dichloropropane	EPA 8260B
2-Chloroethylvinyl ether	EPA 8260B
Bromochloromethane	EPA 8260B
Bromodichloromethane	EPA 8260B
Bromoform	EPA 8260B

Serial No.: 49125

Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 486-5570 to verify the laboratory's accreditation status.

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013
Revised May 08, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DAN PFALZER
Pace Analytical Services, Inc.
2190 TECHNOLOGY DRIVE
SCHENECTADY, NY 12308

NY Lab Id No: 11078

Is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Volatile Halocarbons	
Bromomethane	EPA 8260B
Carbon tetrachloride	EPA 8260B
Chloroethane	EPA 8260B
Chloroform	EPA 8260B
Chloromethane	EPA 8260B
cis-1,2-Dichloroethene	EPA 8260B
cis-1,3-Dichloropropene	EPA 8260B
Dibromochloromethane	EPA 8260B
Dibromomethane	EPA 8260B
Dichlorodifluoromethane	EPA 8260B
Hexachlorobutadiene, Volatile	EPA 8260B
Methylene chloride	EPA 8260B
Tetrachloroethene	EPA 8260B
trans-1,2-Dichloroethene	EPA 8260B
trans-1,3-Dichloropropene	EPA 8260B
trans-1,4-Dichloro-2-butene	EPA 8260B
Trichloroethene	EPA 8260B
Trichlorofluoromethane	EPA 8260B
Vinyl chloride	EPA 8260B
Volatile Organics	
1,4-Dioxane	EPA 8260B
2-Butanone (Methylethyl ketone)	EPA 8260B
2-Hexanone	EPA 8260B
4-Methyl-2-Pentanone	EPA 8260B
Acetone	EPA 8260B

Volatile Organics	
Carbon Disulfide	EPA 8260B
Cyclohexane	EPA 8260B
Methyl acetate	EPA 8260B
Methyl cyclohexane	EPA 8260B
Methyl tert-butyl ether	EPA 8260B
Vinyl acetate	EPA 8260B
Sample Preparation Methods	
	EPA 3050B
	EPA 3540C
	EPA 3545
	EPA 3546
	EPA 3580
	EPA 5035A-H
	EPA 5035A-L

Serial No.: 49125

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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MR. DAN PFALZER
Pace Analytical Services, Inc.
2190 TECHNOLOGY DRIVE
SCHENECTADY, NY 12308

NY Lab Id No: 11078

is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:

Miscellaneous

Lead in Dust Wipes	EPA 6010B
Lead in Paint	EPA 6010B

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Serial No.: 48522

Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 486-5570 to verify the laboratory's accreditation status.

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DAN PFALZER
Pace Analytical Services, Inc.
2190 TECHNOLOGY DRIVE
SCHENECTADY, NY 12308

NY Lab Id No: 11078

Is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA TO-4A
4,4'-DDE	EPA TO-4A
4,4'-DDT	EPA TO-4A
Polychlorinated Biphenyls	
PCB-1016	EPA TO-10A
	EPA TO-4A
	NIOSH 5503
PCB-1221	EPA TO-10A
	EPA TO-4A
	NIOSH 5503
PCB-1232	EPA TO-10A
	EPA TO-4A
	NIOSH 5503
PCB-1242	EPA TO-10A
	EPA TO-4A
	NIOSH 5503
PCB-1248	EPA TO-10A
	EPA TO-4A
	NIOSH 5503
PCB-1254	EPA TO-10A
	EPA TO-4A
	NIOSH 5503
PCB-1260	EPA TO-10A
	EPA TO-4A
	NIOSH 5503

Serial No.: 48523

Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 486-5570 to verify the laboratory's accreditation status.

FLORIDA DEPARTMENT OF HEALTH

State of Florida
Department of Health, Bureau of Laboratories

This is to certify that

E87948

PACE ANALYTICAL SERVICES, INC - GREEN BAY #1
1241 BELLEVUE STREET
GREEN BAY, WI 54302

has complied with Florida Administrative Code 64E-1,
for the examination of Environmental samples in the following categories

NON-POTABLE WATER - EXTRACTABLE ORGANICS, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER - METALS, NON-POTABLE WATER - PESTICIDES-HERBICIDES-PCB'S, NON-POTABLE WATER - VOLATILE ORGANICS, SOLID AND CHEMICAL MATERIALS - EXTRACTABLE ORGANICS, SOLID AND CHEMICAL MATERIALS - GENERAL CHEMISTRY, SOLID AND CHEMICAL MATERIALS - METALS, SOLID AND CHEMICAL MATERIALS - PESTICIDES-HERBICIDES-PCB'S, SOLID AND CHEMICAL MATERIALS - VOLATILE ORGANICS, BIOLOGICAL TISSUE - EXTRACTABLE ORGANICS, BIOLOGICAL TISSUE - GENERAL CHEMISTRY, BIOLOGICAL TISSUE - METALS, BIOLOGICAL TISSUE - PESTICIDES-HERBICIDES-PCB'S

Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

Date Issued: July 01, 2012 Expiration Date: June 30, 2013

Max Salfinger, M.D.
Chief, Bureau of Laboratories
Florida Department of Health
DH Form 1697, 7/04
NON-TRANSFERABLE E87948-21-07/01/2012
Supersedes all previously issued certificates

Laboratory Scope of Accreditation

Attachment to Certificate #: E87948-21, expiration date June 30, 2013. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: E87948 **EPA Lab Code:** WI01103 **(920) 469-2436**

E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Non-Potable Water

Analyte	Method/Tech	Category	Certification Type	Effective Date
1,1,1,2-Tetrachloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1,1-Trichloroethane	EPA 624	Volatile Organics	NELAP	5/15/2009
1,1,1-Trichloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1,2,2-Tetrachloroethane	EPA 624	Volatile Organics	NELAP	5/15/2009
1,1,2,2-Tetrachloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1,2-Trichloroethane	EPA 624	Volatile Organics	NELAP	5/15/2009
1,1,2-Trichloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1-Dichloroethane	EPA 624	Volatile Organics	NELAP	5/15/2009
1,1-Dichloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1-Dichloroethylene	EPA 624	Volatile Organics	NELAP	5/15/2009
1,1-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1-Dichloropropene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2,3-Trichlorobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2,3-Trichloropropane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2,4,5-Tetrachlorobenzene	EPA 8270	Extractable Organics	NELAP	3/19/2012
1,2,4-Trichlorobenzene	EPA 625	Extractable Organics	NELAP	4/1/2005
1,2,4-Trichlorobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2,4-Trichlorobenzene	EPA 8270	Extractable Organics	NELAP	4/1/2005
1,2,4-Trimethylbenzene	EPA 8021	Volatile Organics	NELAP	5/15/2009
1,2,4-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2-Dichlorobenzene	EPA 624	Volatile Organics	NELAP	5/15/2009
1,2-Dichlorobenzene	EPA 625	Extractable Organics	NELAP	4/1/2005
1,2-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	4/1/2005
1,2-Dichloroethane	EPA 624	Volatile Organics	NELAP	5/15/2009
1,2-Dichloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2-Dichloropropane	EPA 624	Volatile Organics	NELAP	5/15/2009
1,2-Dichloropropane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2-Diphenylhydrazine	EPA 8270	Extractable Organics	NELAP	4/1/2005
1,3,5-Trimethylbenzene	EPA 8021	Volatile Organics	NELAP	5/15/2009
1,3,5-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,3-Dichlorobenzene	EPA 624	Volatile Organics	NELAP	5/15/2009
1,3-Dichlorobenzene	EPA 625	Extractable Organics	NELAP	4/1/2005

Laboratory Scope of Accreditation

Attachment to Certificate #: E87948-21, expiration date June 30, 2013. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: E87948 **EPA Lab Code: WI01103** **(920) 469-2436**

E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Non-Potable Water

Analyte	Method/Tech	Category	Certification Type	Effective Date
1,3-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,3-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	4/1/2005
1,3-Dichloropropane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,4-Dichlorobenzene	EPA 624	Volatile Organics	NELAP	5/15/2009
1,4-Dichlorobenzene	EPA 625	Extractable Organics	NELAP	4/1/2005
1,4-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,4-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	4/1/2005
1,4-Dioxane (1,4-Diethyleneoxide)	EPA 8260	Volatile Organics	NELAP	5/15/2009
2,2-Dichloropropane	EPA 8260	Volatile Organics	NELAP	5/15/2009
2,3,4,6-Tetrachlorophenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
2,4,5-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2,4,6-Trichlorophenol	EPA 625	Extractable Organics	NELAP	4/1/2005
2,4,6-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2,4-Dichlorophenol	EPA 625	Extractable Organics	NELAP	4/1/2005
2,4-Dichlorophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2,4-Dimethylphenol	EPA 625	Extractable Organics	NELAP	4/1/2005
2,4-Dimethylphenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2,4-Dinitrophenol	EPA 625	Extractable Organics	NELAP	4/1/2005
2,4-Dinitrophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2,4-Dinitrotoluene (2,4-DNT)	EPA 625	Extractable Organics	NELAP	4/1/2005
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270	Extractable Organics	NELAP	4/1/2005
2,6-Dinitrotoluene (2,6-DNT)	EPA 625	Extractable Organics	NELAP	4/1/2005
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260	Volatile Organics	NELAP	5/15/2009
2-Chloroethyl vinyl ether	EPA 624	Volatile Organics	NELAP	5/15/2009
2-Chloroethyl vinyl ether	EPA 8260	Volatile Organics	NELAP	5/15/2009
2-Chloronaphthalene	EPA 625	Extractable Organics	NELAP	4/1/2005
2-Chloronaphthalene	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Chlorophenol	EPA 625	Extractable Organics	NELAP	4/1/2005
2-Chlorophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Chlorotoluene	EPA 8260	Volatile Organics	NELAP	5/15/2009
2-Hexanone	EPA 8260	Volatile Organics	NELAP	5/15/2009
2-Methyl-4,6-dinitrophenol	EPA 625	Extractable Organics	NELAP	4/1/2005
2-Methyl-4,6-dinitrophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Methylnaphthalene	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Methylphenol (o-Cresol)	EPA 8270	Extractable Organics	NELAP	4/1/2005

Laboratory Scope of Accreditation

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State Laboratory ID: E87948 **EPA Lab Code: WI01103** **(920) 469-2436**

E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Non-Potable Water

Analyte	Method/Tech	Category	Certification Type	Effective Date
2-Nitroaniline	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Nitrophenol	EPA 625	Extractable Organics	NELAP	4/1/2005
2-Nitrophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
3,3'-Dichlorobenzidine	EPA 625	Extractable Organics	NELAP	4/1/2005
3,3'-Dichlorobenzidine	EPA 8270	Extractable Organics	NELAP	4/1/2005
3/4-Methylphenols (m/p-Cresols)	EPA 8270	Extractable Organics	NELAP	4/1/2005
3-Nitroaniline	EPA 8270	Extractable Organics	NELAP	4/1/2005
4,4'-DDD	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
4,4'-DDE	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
4,4'-DDT	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
4-Bromophenyl phenyl ether	EPA 625	Extractable Organics	NELAP	4/1/2005
4-Bromophenyl phenyl ether	EPA 8270	Extractable Organics	NELAP	4/1/2005
4-Chloro-3-methylphenol	EPA 625	Extractable Organics	NELAP	4/1/2005
4-Chloro-3-methylphenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
4-Chloroaniline	EPA 8270	Extractable Organics	NELAP	4/1/2005
4-Chlorophenyl phenylether	EPA 625	Extractable Organics	NELAP	4/1/2005
4-Chlorophenyl phenylether	EPA 8270	Extractable Organics	NELAP	4/1/2005
4-Chlorotoluene	EPA 8260	Volatile Organics	NELAP	5/15/2009
4-Methyl-2-pentanone (MIBK)	EPA 8260	Volatile Organics	NELAP	5/15/2009
4-Nitroaniline	EPA 8270	Extractable Organics	NELAP	4/1/2005
4-Nitrophenol	EPA 625	Extractable Organics	NELAP	4/1/2005
4-Nitrophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
Acenaphthene	EPA 625	Extractable Organics	NELAP	4/1/2005
Acenaphthene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Acenaphthylene	EPA 625	Extractable Organics	NELAP	4/1/2005
Acenaphthylene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Acetone	EPA 8260	Volatile Organics	NELAP	5/15/2009
Acetonitrile	EPA 8260	Volatile Organics	NELAP	5/15/2009
Acetophenone	EPA 625	Extractable Organics	NELAP	4/1/2005
Acetophenone	EPA 8270	Extractable Organics	NELAP	4/1/2005
Acidity, as CaCO3	EPA 305.1	General Chemistry	NELAP	4/1/2005
Acidity, as CaCO3	SM 2310 B (4a)	General Chemistry	NELAP	5/22/2007
Acrolein (Propenal)	EPA 624	Volatile Organics	NELAP	5/15/2009
Acrolein (Propenal)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Acrylonitrile	EPA 624	Volatile Organics	NELAP	5/15/2009
Acrylonitrile	EPA 8260	Volatile Organics	NELAP	5/15/2009

Laboratory Scope of Accreditation

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State Laboratory ID: E87948 **EPA Lab Code:** WI01103 (920) 469-2436

E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Non-Potable Water

Analyte	Method/Tech	Category	Certification Type	Effective Date
Aldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Alkalinity as CaCO3	EPA 310.2	General Chemistry	NELAP	4/1/2005
Allyl chloride (3-Chloropropene)	EPA 8260	Volatile Organics	NELAP	5/15/2009
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
alpha-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aluminum	EPA 6010	Metals	NELAP	4/1/2005
Aluminum	EPA 6020	Metals	NELAP	4/1/2005
Ammonia as N	EPA 350.1	General Chemistry	NELAP	4/1/2005
Aniline	EPA 625	Extractable Organics	NELAP	4/1/2005
Aniline	EPA 8270	Extractable Organics	NELAP	4/1/2005
Anthracene	EPA 625	Extractable Organics	NELAP	4/1/2005
Anthracene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Antimony	EPA 6010	Metals	NELAP	4/1/2005
Antimony	EPA 6020	Metals	NELAP	4/1/2005
Aroclor-1016 (PCB-1016)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1221 (PCB-1221)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1232 (PCB-1232)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1242 (PCB-1242)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1248 (PCB-1248)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1254 (PCB-1254)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1260 (PCB-1260)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Arsenic	EPA 6010	Metals	NELAP	4/1/2005
Arsenic	EPA 6020	Metals	NELAP	4/1/2005
Barium	EPA 6010	Metals	NELAP	4/1/2005
Barium	EPA 6020	Metals	NELAP	4/1/2005
Benzene	EPA 602	Volatile Organics	NELAP	5/15/2009
Benzene	EPA 624	Volatile Organics	NELAP	5/15/2009
Benzene	EPA 8021	Volatile Organics	NELAP	5/15/2009
Benzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Benzidine	EPA 625	Extractable Organics	NELAP	4/1/2005
Benzidine	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzo(a)anthracene	EPA 625	Extractable Organics	NELAP	4/1/2005
Benzo(a)anthracene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzo(a)pyrene	EPA 625	Extractable Organics	NELAP	4/1/2005
Benzo(a)pyrene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzo(b)fluoranthene	EPA 625	Extractable Organics	NELAP	4/1/2005

Laboratory Scope of Accreditation

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State Laboratory ID: E87948 **EPA Lab Code: WI01103** **(920) 469-2436**

E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Non-Potable Water

Analyte	Method/Tech	Category	Certification Type	Effective Date
Benzo(b)fluoranthene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzo(g,h,i)perylene	EPA 625	Extractable Organics	NELAP	4/1/2005
Benzo(g,h,i)perylene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzo(k)fluoranthene	EPA 625	Extractable Organics	NELAP	4/1/2005
Benzo(k)fluoranthene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzoic acid	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzyl alcohol	EPA 8270	Extractable Organics	NELAP	4/1/2005
Beryllium	EPA 6010	Metals	NELAP	4/1/2005
Beryllium	EPA 6020	Metals	NELAP	4/1/2005
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Biochemical oxygen demand	SM 5210 B	General Chemistry	NELAP	4/1/2005
bis(2-Chloroethoxy)methane	EPA 625	Extractable Organics	NELAP	4/1/2005
bis(2-Chloroethoxy)methane	EPA 8270	Extractable Organics	NELAP	4/1/2005
bis(2-Chloroethyl) ether	EPA 625	Extractable Organics	NELAP	4/1/2005
bis(2-Chloroethyl) ether	EPA 8270	Extractable Organics	NELAP	4/1/2005
bis(2-Chloroisopropyl) ether (2,2'-Oxybis(1-chloropropane))	EPA 625	Extractable Organics	NELAP	4/1/2005
bis(2-Chloroisopropyl) ether (2,2'-Oxybis(1-chloropropane))	EPA 8270	Extractable Organics	NELAP	4/1/2005
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 625	Extractable Organics	NELAP	4/1/2005
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 8270	Extractable Organics	NELAP	4/1/2005
Boron	EPA 6010	Metals	NELAP	4/1/2005
Boron	EPA 6020	Metals	NELAP	4/1/2005
Bromide	EPA 300.0	General Chemistry	NELAP	4/1/2005
Bromide	EPA 9056	General Chemistry	NELAP	4/1/2005
Bromobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Bromochloromethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Bromodichloromethane	EPA 624	Volatile Organics	NELAP	5/15/2009
Bromodichloromethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Bromoform	EPA 624	Volatile Organics	NELAP	5/15/2009
Bromoform	EPA 8260	Volatile Organics	NELAP	5/15/2009
Butyl benzyl phthalate	EPA 625	Extractable Organics	NELAP	4/1/2005
Butyl benzyl phthalate	EPA 8270	Extractable Organics	NELAP	4/1/2005
Cadmium	EPA 6010	Metals	NELAP	4/1/2005
Cadmium	EPA 6020	Metals	NELAP	4/1/2005
Calcium	EPA 6010	Metals	NELAP	4/1/2005
Calcium	EPA 6020	Metals	NELAP	4/1/2005

Laboratory Scope of Accreditation

Attachment to Certificate #: E87948-21, expiration date June 30, 2013. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: E87948 **EPA Lab Code: WI01103** **(920) 469-2436**

E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Non-Potable Water

Analyte	Method/Tech	Category	Certification Type	Effective Date
Carbazole	EPA 8270	Extractable Organics	NELAP	4/1/2005
Carbon disulfide	EPA 8260	Volatile Organics	NELAP	5/15/2009
Carbon tetrachloride	EPA 624	Volatile Organics	NELAP	5/15/2009
Carbon tetrachloride	EPA 8260	Volatile Organics	NELAP	5/15/2009
Carbonaceous BOD (CBOD)	SM 5210 B	General Chemistry	NELAP	4/1/2005
Chemical oxygen demand	EPA 410.4	General Chemistry	NELAP	4/1/2005
Chlordane (tech.)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Chloride	EPA 300.0	General Chemistry	NELAP	4/1/2005
Chloride	EPA 9056	General Chemistry	NELAP	4/1/2005
Chlorobenzene	EPA 624	Volatile Organics	NELAP	5/15/2009
Chlorobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Chloroethane	EPA 624	Volatile Organics	NELAP	5/15/2009
Chloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Chloroform	EPA 624	Volatile Organics	NELAP	5/15/2009
Chloroform	EPA 8260	Volatile Organics	NELAP	5/15/2009
Chloroprene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Chromium	EPA 6010	Metals	NELAP	4/1/2005
Chromium	EPA 6020	Metals	NELAP	4/1/2005
Chromium VI	SM 3500-Cr B (20th/21st Ed.)/UV-VIS	General Chemistry	NELAP	5/30/2007
Chrysene	EPA 625	Extractable Organics	NELAP	4/1/2005
Chrysene	EPA 8270	Extractable Organics	NELAP	4/1/2005
cis-1,2-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	5/15/2009
cis-1,3-Dichloropropene	EPA 624	Volatile Organics	NELAP	5/15/2009
cis-1,3-Dichloropropene	EPA 8260	Volatile Organics	NELAP	5/15/2009
cis-1,4-Dichloro-2-butene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Cobalt	EPA 6010	Metals	NELAP	4/1/2005
Cobalt	EPA 6020	Metals	NELAP	4/1/2005
Conductivity	EPA 120.1	General Chemistry	NELAP	4/1/2005
Copper	EPA 6010	Metals	NELAP	4/1/2005
Copper	EPA 6020	Metals	NELAP	4/1/2005
delta-BHC	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Dibenz(a,h)anthracene	EPA 625	Extractable Organics	NELAP	4/1/2005
Dibenz(a,h)anthracene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Dibenzofuran	EPA 8270	Extractable Organics	NELAP	4/1/2005
Dibromochloromethane	EPA 624	Volatile Organics	NELAP	5/15/2009
Dibromochloromethane	EPA 8260	Volatile Organics	NELAP	5/15/2009

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Matrix: Non-Potable Water

Analyte	Method/Tech	Category	Certification Type	Effective Date
Dibromomethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Dichlorodifluoromethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Dieldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Diesel range organics (DRO)	EPA 8015	Extractable Organics	NELAP	4/1/2005
Diethyl ether	EPA 8260	Volatile Organics	NELAP	5/15/2009
Diethyl phthalate	EPA 625	Extractable Organics	NELAP	4/1/2005
Diethyl phthalate	EPA 8270	Extractable Organics	NELAP	4/1/2005
Dimethyl phthalate	EPA 625	Extractable Organics	NELAP	4/1/2005
Dimethyl phthalate	EPA 8270	Extractable Organics	NELAP	4/1/2005
Di-n-butyl phthalate	EPA 625	Extractable Organics	NELAP	4/1/2005
Di-n-butyl phthalate	EPA 8270	Extractable Organics	NELAP	4/1/2005
Di-n-octyl phthalate	EPA 625	Extractable Organics	NELAP	4/1/2005
Di-n-octyl phthalate	EPA 8270	Extractable Organics	NELAP	4/1/2005
Endosulfan I	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endosulfan II	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endosulfan sulfate	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endrin aldehyde	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endrin ketone	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Ethanol	EPA 8015	Volatile Organics	NELAP	5/15/2009
Ethanol	EPA 8260	Volatile Organics	NELAP	5/15/2009
Ethyl acetate	EPA 8260	Volatile Organics	NELAP	5/15/2009
Ethyl methacrylate	EPA 8260	Volatile Organics	NELAP	5/15/2009
Ethylbenzene	EPA 602	Volatile Organics	NELAP	5/15/2009
Ethylbenzene	EPA 624	Volatile Organics	NELAP	5/15/2009
Ethylbenzene	EPA 8021	Volatile Organics	NELAP	5/15/2009
Ethylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Ethyl-t-butylether (ETBE)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Fluoranthene	EPA 625	Extractable Organics	NELAP	4/1/2005
Fluoranthene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Fluorene	EPA 625	Extractable Organics	NELAP	4/1/2005
Fluorene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Fluoride	EPA 300.0	General Chemistry	NELAP	4/1/2005
Fluoride	EPA 9056	General Chemistry	NELAP	4/1/2005
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
gamma-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007

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Matrix: Non-Potable Water

Analyte	Method/Tech	Category	Certification Type	Effective Date
Gasoline range organics (GRO)	EPA 8015	Volatile Organics	NELAP	5/15/2009
Gasoline range organics (GRO)	WI-GRO	Volatile Organics	NELAP	5/15/2009
Hardness	SM 2340 B	General Chemistry	NELAP	4/1/2005
Heptachlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Heptachlor epoxide	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Hexachlorobenzene	EPA 625	Extractable Organics	NELAP	4/1/2005
Hexachlorobenzene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Hexachlorobutadiene	EPA 625	Extractable Organics	NELAP	4/1/2005
Hexachlorobutadiene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Hexachlorobutadiene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Hexachlorocyclopentadiene	EPA 625	Extractable Organics	NELAP	4/1/2005
Hexachlorocyclopentadiene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Hexachloroethane	EPA 625	Extractable Organics	NELAP	4/1/2005
Hexachloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Hexachloroethane	EPA 8270	Extractable Organics	NELAP	4/1/2005
Ignitability	EPA 1010	General Chemistry	NELAP	4/1/2005
Indeno(1,2,3-cd)pyrene	EPA 625	Extractable Organics	NELAP	4/1/2005
Indeno(1,2,3-cd)pyrene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Iodomethane (Methyl iodide)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Iron	EPA 6010	Metals	NELAP	4/1/2005
Iron	EPA 6020	Metals	NELAP	4/1/2005
Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Isophorone	EPA 625	Extractable Organics	NELAP	4/1/2005
Isophorone	EPA 8270	Extractable Organics	NELAP	4/1/2005
Isopropyl alcohol (2-Propanol)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Isopropylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Kjeldahl nitrogen - total	EPA 351.2	General Chemistry	NELAP	4/1/2005
Lead	EPA 6010	Metals	NELAP	4/1/2005
Lead	EPA 6020	Metals	NELAP	4/1/2005
Lithium	EPA 6020	Metals	NELAP	5/15/2009
m/p-Xylenes	EPA 8021	Volatile Organics	NELAP	5/15/2009
m/p-Xylenes	EPA 8260	Volatile Organics	NELAP	5/15/2009
Magnesium	EPA 6010	Metals	NELAP	4/1/2005
Magnesium	EPA 6020	Metals	NELAP	4/1/2005
Manganese	EPA 6010	Metals	NELAP	4/1/2005
Manganese	EPA 6020	Metals	NELAP	4/1/2005

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Green Bay, WI 54302

Matrix: Non-Potable Water

Analyte	Method/Tech	Category	Certification Type	Effective Date
Mercury	EPA 1631	Metals	NELAP	5/30/2007
Mercury	EPA 6020	Metals	NELAP	3/19/2012
Mercury	EPA 7470	Metals	NELAP	4/1/2005
Methacrylonitrile	EPA 8260	Volatile Organics	NELAP	5/15/2009
Methanol	EPA 8015	Volatile Organics	NELAP	5/15/2009
Methoxychlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Methyl bromide (Bromomethane)	EPA 624	Volatile Organics	NELAP	5/15/2009
Methyl bromide (Bromomethane)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Methyl chloride (Chloromethane)	EPA 624	Volatile Organics	NELAP	5/15/2009
Methyl chloride (Chloromethane)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Methyl methacrylate	EPA 8260	Volatile Organics	NELAP	5/15/2009
Methyl tert-butyl ether (MTBE)	EPA 8021	Volatile Organics	NELAP	5/15/2009
Methyl tert-butyl ether (MTBE)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Methylene chloride	EPA 624	Volatile Organics	NELAP	5/15/2009
Methylene chloride	EPA 8260	Volatile Organics	NELAP	5/15/2009
Mirex	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Molybdenum	EPA 6010	Metals	NELAP	4/1/2005
Molybdenum	EPA 6020	Metals	NELAP	4/1/2005
Naphthalene	EPA 625	Extractable Organics	NELAP	4/1/2005
Naphthalene	EPA 8021	Volatile Organics	NELAP	5/15/2009
Naphthalene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Naphthalene	EPA 8270	Extractable Organics	NELAP	4/1/2005
n-Butyl alcohol	EPA 8260	Volatile Organics	NELAP	5/15/2009
n-Butylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Nickel	EPA 6010	Metals	NELAP	4/1/2005
Nickel	EPA 6020	Metals	NELAP	4/1/2005
Nitrate	EPA 9056	General Chemistry	NELAP	4/1/2005
Nitrate as N	EPA 300.0	General Chemistry	NELAP	4/1/2005
Nitrite	EPA 9056	General Chemistry	NELAP	4/1/2005
Nitrite as N	EPA 300.0	General Chemistry	NELAP	4/1/2005
Nitrobenzene	EPA 625	Extractable Organics	NELAP	4/1/2005
Nitrobenzene	EPA 8270	Extractable Organics	NELAP	4/1/2005
n-Nitrosodimethylamine	EPA 625	Extractable Organics	NELAP	4/1/2005
n-Nitrosodimethylamine	EPA 8270	Extractable Organics	NELAP	4/1/2005
n-Nitrosodi-n-propylamine	EPA 625	Extractable Organics	NELAP	4/1/2005
n-Nitrosodi-n-propylamine	EPA 8270	Extractable Organics	NELAP	4/1/2005

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Pace Analytical Services, Inc - Green Bay #1
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Green Bay, WI 54302

Matrix: Non-Potable Water

Analyte	Method/Tech	Category	Certification Type	Effective Date
n-Nitrosodiphenylamine	EPA 625	Extractable Organics	NELAP	4/1/2005
n-Nitrosodiphenylamine	EPA 8270	Extractable Organics	NELAP	4/1/2005
n-Propanol	EPA 8260	Volatile Organics	NELAP	5/15/2009
n-Propylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Organic nitrogen	TKN minus AMMONIA	General Chemistry	NELAP	4/1/2005
o-Xylene	EPA 8021	Volatile Organics	NELAP	5/15/2009
o-Xylene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Pentachlorophenol	EPA 625	Extractable Organics	NELAP	4/1/2005
Pentachlorophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
pH	EPA 9040	General Chemistry	NELAP	4/1/2005
pH	SM 4500-H+-B	General Chemistry	NELAP	5/22/2007
Phenanthrene	EPA 625	Extractable Organics	NELAP	4/1/2005
Phenanthrene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Phenol	EPA 625	Extractable Organics	NELAP	4/1/2005
Phenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
Phosphorus, total	EPA 365.4	General Chemistry	NELAP	4/1/2005
p-Isopropyltoluene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Potassium	EPA 6010	Metals	NELAP	4/1/2005
Potassium	EPA 6020	Metals	NELAP	4/1/2005
Propionitrile (Ethyl cyanide)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Pyrene	EPA 625	Extractable Organics	NELAP	4/1/2005
Pyrene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Pyridine	EPA 625	Extractable Organics	NELAP	4/1/2005
Pyridine	EPA 8270	Extractable Organics	NELAP	4/1/2005
Residue-filterable (TDS)	SM 2540 C	General Chemistry	NELAP	5/30/2007
Residue-nonfilterable (TSS)	SM 2540 D	General Chemistry	NELAP	5/30/2007
Residue-total	SM 2540 B	General Chemistry	NELAP	5/30/2007
Residue-volatile	EPA 160.4	General Chemistry	NELAP	4/1/2005
Residue-volatile	SM 2540 E	General Chemistry	NELAP	5/30/2007
sec-Butylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Selenium	EPA 6010	Metals	NELAP	4/1/2005
Selenium	EPA 6020	Metals	NELAP	4/1/2005
Silicon	EPA 6020	Metals	NELAP	3/19/2012
Silver	EPA 6010	Metals	NELAP	4/1/2005
Silver	EPA 6020	Metals	NELAP	4/1/2005
Sodium	EPA 6010	Metals	NELAP	4/1/2005

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Pace Analytical Services, Inc - Green Bay #1
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Green Bay, WI 54302

Matrix: Non-Potable Water

Analyte	Method/Tech	Category	Certification Type	Effective Date
Sodium	EPA 6020	Metals	NELAP	4/1/2005
Strontium	EPA 6020	Metals	NELAP	5/30/2007
Styrene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Sulfate	EPA 300.0	General Chemistry	NELAP	4/1/2005
Sulfate	EPA 9056	General Chemistry	NELAP	4/1/2005
Sulfide	SM 4500-S F (19th/20th/21st Ed.)/TITR	General Chemistry	NELAP	1/30/2008
T-amylmethylether (TAME)	EPA 8260	Volatile Organics	NELAP	5/15/2009
tert-Butyl alcohol	EPA 8260	Volatile Organics	NELAP	5/15/2009
tert-Butylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Tetrachloroethylene (Perchloroethylene)	EPA 624	Volatile Organics	NELAP	5/15/2009
Tetrachloroethylene (Perchloroethylene)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Thallium	EPA 6010	Metals	NELAP	4/1/2005
Thallium	EPA 6020	Metals	NELAP	4/1/2005
Tin	EPA 6010	Metals	NELAP	4/1/2005
Titanium	EPA 6010	Metals	NELAP	4/1/2005
Titanium	EPA 6020	Metals	NELAP	5/30/2007
Toluene	EPA 602	Volatile Organics	NELAP	5/15/2009
Toluene	EPA 624	Volatile Organics	NELAP	5/15/2009
Toluene	EPA 8021	Volatile Organics	NELAP	5/15/2009
Toluene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Total cyanide	EPA 335.4	General Chemistry	NELAP	4/1/2005
Total cyanide	EPA 9012	General Chemistry	NELAP	4/1/2005
Total nitrate-nitrite	EPA 300.0	General Chemistry	NELAP	4/1/2005
Total nitrate-nitrite	EPA 353.2	General Chemistry	NELAP	4/1/2005
Total nitrate-nitrite	EPA 9056	General Chemistry	NELAP	4/1/2005
Total organic carbon	EPA 9060	General Chemistry	NELAP	6/24/2011
Total organic carbon	SM 5310 C	General Chemistry	NELAP	6/24/2011
Toxaphene (Chlorinated camphene)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
trans-1,2-Dichloroethylene	EPA 624	Volatile Organics	NELAP	5/15/2009
trans-1,2-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	5/15/2009
trans-1,3-Dichloropropene	EPA 624	Volatile Organics	NELAP	5/15/2009
trans-1,3-Dichloropropene	EPA 8260	Volatile Organics	NELAP	5/15/2009
trans-1,4-Dichloro-2-butene	EPA 8260	Volatile Organics	NELAP	5/15/2009
trans-Nonachlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Trichloroethene (Trichloroethylene)	EPA 624	Volatile Organics	NELAP	5/15/2009
Trichloroethene (Trichloroethylene)	EPA 8260	Volatile Organics	NELAP	5/15/2009

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Matrix: Non-Potable Water

Analyte	Method/Tech	Category	Certification Type	Effective Date
Trichlorofluoromethane	EPA 624	Volatile Organics	NELAP	5/15/2009
Trichlorofluoromethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Turbidity	SM 2130 B	General Chemistry	NELAP	4/1/2005
Uranium	EPA 6020	Metals	NELAP	3/19/2012
Vanadium	EPA 6010	Metals	NELAP	4/1/2005
Vanadium	EPA 6020	Metals	NELAP	4/1/2005
Vinyl acetate	EPA 8260	Volatile Organics	NELAP	5/15/2009
Vinyl chloride	EPA 624	Volatile Organics	NELAP	5/15/2009
Vinyl chloride	EPA 8260	Volatile Organics	NELAP	5/15/2009
Xylene (total)	EPA 602	Volatile Organics	NELAP	5/15/2009
Xylene (total)	EPA 624	Volatile Organics	NELAP	5/15/2009
Xylene (total)	EPA 8021	Volatile Organics	NELAP	5/15/2009
Xylene (total)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Zinc	EPA 6010	Metals	NELAP	4/1/2005
Zinc	EPA 6020	Metals	NELAP	4/1/2005
Zirconium	EPA 6020	Metals	NELAP	3/19/2012

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E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Solid and Chemical Materials

Analyte	Method/Tech	Category	Certification Type	Effective Date
1,1,1,2-Tetrachloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1,1-Trichloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1,2,2-Tetrachloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1,2-Trichloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1-Dichloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,1-Dichloropropene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2,3-Trichlorobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2,3-Trichloropropane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2,4,5-Tetrachlorobenzene	EPA 8270	Extractable Organics	NELAP	3/19/2012
1,2,4-Trichlorobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2,4-Trichlorobenzene	EPA 8270	Extractable Organics	NELAP	4/1/2005
1,2,4-Trimethylbenzene	EPA 8021	Volatile Organics	NELAP	5/15/2009
1,2,4-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	4/1/2005
1,2-Dichloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2-Dichloropropane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,2-Diphenylhydrazine	EPA 8270	Extractable Organics	NELAP	4/1/2005
1,3,5-Trimethylbenzene	EPA 8021	Volatile Organics	NELAP	5/15/2009
1,3,5-Trimethylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,3-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,3-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	4/1/2005
1,3-Dichloropropane	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,4-Dichlorobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
1,4-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	4/1/2005
1,4-Dioxane (1,4-Diethyleneoxide)	EPA 8260	Volatile Organics	NELAP	5/15/2009
2,2-Dichloropropane	EPA 8260	Volatile Organics	NELAP	5/15/2009
2,3,4,6-Tetrachlorophenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
2,4,5-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2,4,6-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2,4-Dichlorophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2,4-Dimethylphenol	EPA 8270	Extractable Organics	NELAP	4/1/2005

Laboratory Scope of Accreditation

Attachment to Certificate #: E87948-21, expiration date June 30, 2013. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: E87948 **EPA Lab Code: WI01103** **(920) 469-2436**

E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Solid and Chemical Materials

Analyte	Method/Tech	Category	Certification Type	Effective Date
2,4-Dinitrophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270	Extractable Organics	NELAP	4/1/2005
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260	Volatile Organics	NELAP	5/15/2009
2-Chloroethyl vinyl ether	EPA 8260	Volatile Organics	NELAP	5/15/2009
2-Chloronaphthalene	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Chlorophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Chlorotoluene	EPA 8260	Volatile Organics	NELAP	5/15/2009
2-Hexanone	EPA 8260	Volatile Organics	NELAP	5/15/2009
2-Methyl-4,6-dinitrophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Methylnaphthalene	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Methylphenol (o-Cresol)	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Nitroaniline	EPA 8270	Extractable Organics	NELAP	4/1/2005
2-Nitrophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
3,3'-Dichlorobenzidine	EPA 8270	Extractable Organics	NELAP	4/1/2005
3/4-Methylphenols (m/p-Cresols)	EPA 8270	Extractable Organics	NELAP	4/1/2005
3-Nitroaniline	EPA 8270	Extractable Organics	NELAP	4/1/2005
4,4'-DDD	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
4,4'-DDE	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
4,4'-DDT	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
4-Bromophenyl phenyl ether	EPA 8270	Extractable Organics	NELAP	4/1/2005
4-Chloro-3-methylphenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
4-Chloroaniline	EPA 8270	Extractable Organics	NELAP	4/1/2005
4-Chlorophenyl phenylether	EPA 8270	Extractable Organics	NELAP	4/1/2005
4-Chlorotoluene	EPA 8260	Volatile Organics	NELAP	5/15/2009
4-Methyl-2-pentanone (MIBK)	EPA 8260	Volatile Organics	NELAP	5/15/2009
4-Nitroaniline	EPA 8270	Extractable Organics	NELAP	4/1/2005
4-Nitrophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
Acenaphthene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Acenaphthylene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Acetone	EPA 8260	Volatile Organics	NELAP	5/15/2009
Acetonitrile	EPA 8260	Volatile Organics	NELAP	5/15/2009
Acetophenone	EPA 8270	Extractable Organics	NELAP	4/1/2005
Acrolein (Propenal)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Acrylonitrile	EPA 8260	Volatile Organics	NELAP	5/15/2009
Aldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007

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E87948
Pace Analytical Services, Inc - Green Bay #1
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Green Bay, WI 54302

Matrix: Solid and Chemical Materials

Analyte	Method/Tech	Category	Certification Type	Effective Date
Allyl chloride (3-Chloropropene)	EPA 8260	Volatile Organics	NELAP	5/15/2009
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
alpha-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aluminum	EPA 6010	Metals	NELAP	4/1/2005
Aluminum	EPA 6020	Metals	NELAP	4/1/2005
Ammonia as N	EPA 350.1	General Chemistry	NELAP	4/1/2005
Aniline	EPA 8270	Extractable Organics	NELAP	4/1/2005
Anthracene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Antimony	EPA 6010	Metals	NELAP	4/1/2005
Antimony	EPA 6020	Metals	NELAP	4/1/2005
Aroclor-1016 (PCB-1016)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1221 (PCB-1221)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1232 (PCB-1232)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1242 (PCB-1242)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1248 (PCB-1248)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1254 (PCB-1254)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1260 (PCB-1260)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Arsenic	EPA 6010	Metals	NELAP	4/1/2005
Arsenic	EPA 6020	Metals	NELAP	4/1/2005
Barium	EPA 6010	Metals	NELAP	4/1/2005
Barium	EPA 6020	Metals	NELAP	4/1/2005
Benzene	EPA 8021	Volatile Organics	NELAP	5/15/2009
Benzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Benzidine	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzo(a)anthracene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzo(a)pyrene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzo(b)fluoranthene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzo(g,h,i)perylene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzo(k)fluoranthene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzoic acid	EPA 8270	Extractable Organics	NELAP	4/1/2005
Benzyl alcohol	EPA 8270	Extractable Organics	NELAP	4/1/2005
Beryllium	EPA 6010	Metals	NELAP	4/1/2005
Beryllium	EPA 6020	Metals	NELAP	4/1/2005
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
bis(2-Chloroethoxy)methane	EPA 8270	Extractable Organics	NELAP	4/1/2005
bis(2-Chloroethyl) ether	EPA 8270	Extractable Organics	NELAP	4/1/2005

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Pace Analytical Services, Inc - Green Bay #1
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Green Bay, WI 54302

Matrix: Solid and Chemical Materials

Analyte	Method/Tech	Category	Certification Type	Effective Date
bis(2-Chloroisopropyl) ether (2,2'-Oxybis(1-chloropropane))	EPA 8270	Extractable Organics	NELAP	4/1/2005
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 8270	Extractable Organics	NELAP	4/1/2005
Boron	EPA 6010	Metals	NELAP	4/1/2005
Boron	EPA 6020	Metals	NELAP	4/1/2005
Bromobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Bromochloromethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Bromodichloromethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Bromoform	EPA 8260	Volatile Organics	NELAP	5/15/2009
Butyl benzyl phthalate	EPA 8270	Extractable Organics	NELAP	4/1/2005
Cadmium	EPA 6010	Metals	NELAP	4/1/2005
Cadmium	EPA 6020	Metals	NELAP	4/1/2005
Calcium	EPA 6010	Metals	NELAP	4/1/2005
Calcium	EPA 6020	Metals	NELAP	4/1/2005
Carbazole	EPA 8270	Extractable Organics	NELAP	4/1/2005
Carbon disulfide	EPA 8260	Volatile Organics	NELAP	5/15/2009
Carbon tetrachloride	EPA 8260	Volatile Organics	NELAP	5/15/2009
Chlordane (tech.)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Chlorobenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Chloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Chloroform	EPA 8260	Volatile Organics	NELAP	5/15/2009
Chloroprene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Chromium	EPA 6010	Metals	NELAP	4/1/2005
Chromium	EPA 6020	Metals	NELAP	4/1/2005
Chrysene	EPA 8270	Extractable Organics	NELAP	4/1/2005
cis-1,2-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	5/15/2009
cis-1,3-Dichloropropene	EPA 8260	Volatile Organics	NELAP	5/15/2009
cis-1,4-Dichloro-2-butene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Cobalt	EPA 6010	Metals	NELAP	4/1/2005
Cobalt	EPA 6020	Metals	NELAP	4/1/2005
Copper	EPA 6010	Metals	NELAP	4/1/2005
Copper	EPA 6020	Metals	NELAP	4/1/2005
delta-BHC	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Dibenz(a,h)anthracene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Dibenzofuran	EPA 8270	Extractable Organics	NELAP	4/1/2005
Dibromochloromethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Dibromomethane	EPA 8260	Volatile Organics	NELAP	5/15/2009

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E87948
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Matrix: Solid and Chemical Materials

Analyte	Method/Tech	Category	Certification Type	Effective Date
Dichlorodifluoromethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Dieldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Diesel range organics (DRO)	EPA 8015	Extractable Organics	NELAP	4/1/2005
Diethyl ether	EPA 8260	Volatile Organics	NELAP	5/15/2009
Diethyl phthalate	EPA 8270	Extractable Organics	NELAP	4/1/2005
Dimethyl phthalate	EPA 8270	Extractable Organics	NELAP	4/1/2005
Di-n-butyl phthalate	EPA 8270	Extractable Organics	NELAP	4/1/2005
Di-n-octyl phthalate	EPA 8270	Extractable Organics	NELAP	4/1/2005
Endosulfan I	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endosulfan II	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endosulfan sulfate	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endrin aldehyde	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endrin ketone	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Ethanol	EPA 8260	Volatile Organics	NELAP	5/15/2009
Ethyl acetate	EPA 8260	Volatile Organics	NELAP	5/15/2009
Ethyl methacrylate	EPA 8260	Volatile Organics	NELAP	5/15/2009
Ethylbenzene	EPA 8021	Volatile Organics	NELAP	5/15/2009
Ethylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Ethyl-t-butylether (ETBE)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Fluoranthene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Fluorene	EPA 8270	Extractable Organics	NELAP	4/1/2005
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
gamma-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Gasoline range organics (GRO)	EPA 8015	Extractable Organics	NELAP	5/15/2009
Gasoline range organics (GRO)	WI-GRO	Extractable Organics	NELAP	5/15/2009
Heptachlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Heptachlor epoxide	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Hexachlorobenzene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Hexachlorobutadiene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Hexachlorobutadiene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Hexachlorocyclopentadiene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Hexachloroethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Hexachloroethane	EPA 8270	Extractable Organics	NELAP	4/1/2005
Ignitability	EPA 1010	General Chemistry	NELAP	4/1/2005
Indeno(1,2,3-cd)pyrene	EPA 8270	Extractable Organics	NELAP	4/1/2005

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Matrix: Solid and Chemical Materials

Analyte	Method/Tech	Category	Certification Type	Effective Date
Iodomethane (Methyl iodide)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Iron	EPA 6010	Metals	NELAP	4/1/2005
Iron	EPA 6020	Metals	NELAP	4/1/2005
Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Isophorone	EPA 8270	Extractable Organics	NELAP	4/1/2005
Isopropyl alcohol (2-Propanol)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Isopropylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Kjeldahl nitrogen - total	EPA 351.2	General Chemistry	NELAP	4/1/2005
Lead	EPA 6010	Metals	NELAP	4/1/2005
Lead	EPA 6020	Metals	NELAP	4/1/2005
Lithium	EPA 6020	Metals	NELAP	5/15/2009
Magnesium	EPA 6010	Metals	NELAP	4/1/2005
Magnesium	EPA 6020	Metals	NELAP	4/1/2005
Manganese	EPA 6010	Metals	NELAP	4/1/2005
Manganese	EPA 6020	Metals	NELAP	4/1/2005
Mercury	EPA 6020	Metals	NELAP	3/19/2012
Mercury	EPA 7471	Metals	NELAP	4/1/2005
Methacrylonitrile	EPA 8260	Volatile Organics	NELAP	5/15/2009
Methoxychlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Methyl bromide (Bromomethane)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Methyl chloride (Chloromethane)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Methyl methacrylate	EPA 8260	Volatile Organics	NELAP	5/15/2009
Methyl tert-butyl ether (MTBE)	EPA 8021	Volatile Organics	NELAP	5/15/2009
Methyl tert-butyl ether (MTBE)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Methylene chloride	EPA 8260	Volatile Organics	NELAP	5/15/2009
Mirex	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Molybdenum	EPA 6010	Metals	NELAP	4/1/2005
Molybdenum	EPA 6020	Metals	NELAP	4/1/2005
Naphthalene	EPA 8021	Volatile Organics	NELAP	5/15/2009
Naphthalene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Naphthalene	EPA 8270	Extractable Organics	NELAP	4/1/2005
n-Butyl alcohol	EPA 8260	Volatile Organics	NELAP	5/15/2009
n-Butylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Nickel	EPA 6010	Metals	NELAP	4/1/2005
Nickel	EPA 6020	Metals	NELAP	4/1/2005
Nitrobenzene	EPA 8270	Extractable Organics	NELAP	4/1/2005

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Matrix: Solid and Chemical Materials

Analyte	Method/Tech	Category	Certification Type	Effective Date
n-Nitrosodimethylamine	EPA 8270	Extractable Organics	NELAP	4/1/2005
n-Nitrosodi-n-propylamine	EPA 8270	Extractable Organics	NELAP	4/1/2005
n-Nitrosodiphenylamine	EPA 8270	Extractable Organics	NELAP	4/1/2005
n-Propanol	EPA 8260	Volatile Organics	NELAP	5/15/2009
n-Propylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Organic nitrogen	TKN minus AMMONIA	General Chemistry	NELAP	4/1/2005
Paint Filter Liquids Test	EPA 9095	General Chemistry	NELAP	4/1/2005
Pentachlorophenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
Percent (%) moisture	ASTM D2974-87	General Chemistry	NELAP	5/15/2009
pH	EPA 9040	General Chemistry	NELAP	4/1/2005
pH	EPA 9045	General Chemistry	NELAP	4/1/2005
Phenanthrene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Phenol	EPA 8270	Extractable Organics	NELAP	4/1/2005
Phosphorus	EPA 6020	Metals	NELAP	3/19/2012
Phosphorus, total	EPA 365.4	General Chemistry	NELAP	4/1/2005
p-Isopropyltoluene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Potassium	EPA 6010	Metals	NELAP	4/1/2005
Potassium	EPA 6020	Metals	NELAP	4/1/2005
Propionitrile (Ethyl cyanide)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Pyrene	EPA 8270	Extractable Organics	NELAP	4/1/2005
Pyridine	EPA 8270	Extractable Organics	NELAP	4/1/2005
sec-Butylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Selenium	EPA 6010	Metals	NELAP	4/1/2005
Selenium	EPA 6020	Metals	NELAP	4/1/2005
Silver	EPA 6010	Metals	NELAP	4/1/2005
Silver	EPA 6020	Metals	NELAP	4/1/2005
Sodium	EPA 6010	Metals	NELAP	4/1/2005
Sodium	EPA 6020	Metals	NELAP	4/1/2005
Strontium	EPA 6020	Metals	NELAP	5/30/2007
Styrene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Synthetic Precipitation Leaching Procedure	EPA 1312	General Chemistry	NELAP	4/1/2005
T-amylmethylether (TAME)	EPA 8260	Volatile Organics	NELAP	5/15/2009
tert-Butyl alcohol	EPA 8260	Volatile Organics	NELAP	5/15/2009
tert-Butylbenzene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Tetrachloroethylene (Perchloroethylene)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Thallium	EPA 6010	Metals	NELAP	4/1/2005

Laboratory Scope of Accreditation

Attachment to Certificate #: E87948-21, expiration date June 30, 2013. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: E87948 **EPA Lab Code:** WI01103 (920) 469-2436

E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Solid and Chemical Materials

Analyte	Method/Tech	Category	Certification Type	Effective Date
Thallium	EPA 6020	Metals	NELAP	4/1/2005
Tin	EPA 6010	Metals	NELAP	4/1/2005
Titanium	EPA 6010	Metals	NELAP	4/1/2005
Titanium	EPA 6020	Metals	NELAP	5/30/2007
Toluene	EPA 8021	Volatile Organics	NELAP	5/15/2009
Toluene	EPA 8260	Volatile Organics	NELAP	5/15/2009
Total cyanide	EPA 9012	General Chemistry	NELAP	4/1/2005
Total nitrate-nitrite	EPA 353.2	General Chemistry	NELAP	4/1/2005
Total nitrogen	TKN + Total nitrate-nitrite	General Chemistry	NELAP	4/1/2005
Total organic carbon	EPA 9060	General Chemistry	NELAP	5/30/2007
Toxaphene (Chlorinated camphene)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Toxicity Characteristic Leaching Procedure	EPA 1311	General Chemistry	NELAP	4/1/2005
trans-1,2-Dichloroethylene	EPA 8260	Volatile Organics	NELAP	5/15/2009
trans-1,3-Dichloropropene	EPA 8260	Volatile Organics	NELAP	5/15/2009
trans-1,4-Dichloro-2-butene	EPA 8260	Volatile Organics	NELAP	5/15/2009
trans-Nonachlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Trichloroethene (Trichloroethylene)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Trichlorofluoromethane	EPA 8260	Volatile Organics	NELAP	5/15/2009
Uranium	EPA 6020	Metals	NELAP	3/19/2012
Vanadium	EPA 6010	Metals	NELAP	4/1/2005
Vanadium	EPA 6020	Metals	NELAP	4/1/2005
Vinyl acetate	EPA 8260	Volatile Organics	NELAP	5/15/2009
Vinyl chloride	EPA 8260	Volatile Organics	NELAP	5/15/2009
Xylene (total)	EPA 8021	Volatile Organics	NELAP	5/15/2009
Xylene (total)	EPA 8260	Volatile Organics	NELAP	5/15/2009
Zinc	EPA 6010	Metals	NELAP	4/1/2005
Zinc	EPA 6020	Metals	NELAP	4/1/2005

Laboratory Scope of Accreditation

Attachment to Certificate #: E87948-21, expiration date June 30, 2013. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: E87948 **EPA Lab Code: WI01103** **(920) 469-2436**

E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Biological Tissue

Analyte	Method/Tech	Category	Certification Type	Effective Date
1,2,4-Trichlorobenzene	EPA 8270	Extractable Organics	NELAP	5/30/2007
1,2-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	5/30/2007
1,3-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	5/30/2007
1,4-Dichlorobenzene	EPA 8270	Extractable Organics	NELAP	5/30/2007
2,4,5-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
2,4,6-Trichlorophenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
2,4-Dichlorophenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
2,4-Dimethylphenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
2,4-Dinitrophenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270	Extractable Organics	NELAP	5/30/2007
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270	Extractable Organics	NELAP	5/30/2007
2-Chloronaphthalene	EPA 8270	Extractable Organics	NELAP	5/30/2007
2-Chlorophenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
2-Methyl-4,6-dinitrophenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
2-Methylnaphthalene	EPA 8270	Extractable Organics	NELAP	5/30/2007
2-Methylphenol (o-Cresol)	EPA 8270	Extractable Organics	NELAP	5/30/2007
2-Nitroaniline	EPA 8270	Extractable Organics	NELAP	5/30/2007
2-Nitrophenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
3,3'-Dichlorobenzidine	EPA 8270	Extractable Organics	NELAP	5/30/2007
3/4-Methylphenols (m/p-Cresols)	EPA 8270	Extractable Organics	NELAP	5/30/2007
3-Nitroaniline	EPA 8270	Extractable Organics	NELAP	5/30/2007
4,4'-DDD	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
4,4'-DDE	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
4,4'-DDT	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
4-Bromophenyl phenyl ether	EPA 8270	Extractable Organics	NELAP	5/30/2007
4-Chloro-3-methylphenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
4-Chloroaniline	EPA 8270	Extractable Organics	NELAP	5/30/2007
4-Chlorophenyl phenylether	EPA 8270	Extractable Organics	NELAP	5/30/2007
4-Nitroaniline	EPA 8270	Extractable Organics	NELAP	5/30/2007
4-Nitrophenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
Acenaphthene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Acenaphthylene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Aldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
alpha-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aluminum	EPA 6020	Metals	NELAP	5/30/2007

Laboratory Scope of Accreditation

Attachment to Certificate #: E87948-21, expiration date June 30, 2013. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: E87948 **EPA Lab Code:** WI01103 (920) 469-2436

E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Biological Tissue

Analyte	Method/Tech	Category	Certification Type	Effective Date
Anthracene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Antimony	EPA 6020	Metals	NELAP	5/30/2007
Aroclor-1016 (PCB-1016)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1221 (PCB-1221)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1232 (PCB-1232)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1242 (PCB-1242)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1248 (PCB-1248)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1254 (PCB-1254)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Aroclor-1260 (PCB-1260)	EPA 8082	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Arsenic	EPA 6020	Metals	NELAP	5/30/2007
Barium	EPA 6020	Metals	NELAP	5/30/2007
Benzo(a)anthracene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Benzo(a)pyrene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Benzo(b)fluoranthene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Benzo(g,h,i)perylene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Benzo(k)fluoranthene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Beryllium	EPA 6020	Metals	NELAP	5/30/2007
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
bis(2-Chloroethoxy)methane	EPA 8270	Extractable Organics	NELAP	5/30/2007
bis(2-Chloroethyl) ether	EPA 8270	Extractable Organics	NELAP	5/30/2007
bis(2-Chloroisopropyl) ether (2,2'-Oxybis(1-chloropropane))	EPA 8270	Extractable Organics	NELAP	5/30/2007
bis(2-Ethylhexyl) phthalate (DEHP)	EPA 8270	Extractable Organics	NELAP	5/30/2007
Boron	EPA 6020	Metals	NELAP	5/30/2007
Butyl benzyl phthalate	EPA 8270	Extractable Organics	NELAP	5/30/2007
Cadmium	EPA 6020	Metals	NELAP	5/30/2007
Calcium	EPA 6020	Metals	NELAP	5/30/2007
Carbazole	EPA 8270	Extractable Organics	NELAP	5/30/2007
Chlordane (tech.)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Chromium	EPA 6020	Metals	NELAP	5/30/2007
Chrysene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Cobalt	EPA 6020	Metals	NELAP	5/30/2007
Copper	EPA 6020	Metals	NELAP	5/30/2007
delta-BHC	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Dibenz(a,h)anthracene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Dibenzofuran	EPA 8270	Extractable Organics	NELAP	5/30/2007
Dieldrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007

Laboratory Scope of Accreditation

Attachment to Certificate #: E87948-21, expiration date June 30, 2013. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: E87948 **EPA Lab Code:** WI01103 (920) 469-2436

E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Biological Tissue

Analyte	Method/Tech	Category	Certification Type	Effective Date
Diethyl phthalate	EPA 8270	Extractable Organics	NELAP	5/30/2007
Dimethyl phthalate	EPA 8270	Extractable Organics	NELAP	5/30/2007
Di-n-butyl phthalate	EPA 8270	Extractable Organics	NELAP	5/30/2007
Di-n-octyl phthalate	EPA 8270	Extractable Organics	NELAP	5/30/2007
Endosulfan I	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endosulfan II	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endosulfan sulfate	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endrin	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endrin aldehyde	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Endrin ketone	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Fluoranthene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Fluorene	EPA 8270	Extractable Organics	NELAP	5/30/2007
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
gamma-Chlordane	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Heptachlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Heptachlor epoxide	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Hexachlorobenzene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Hexachlorobutadiene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Hexachlorocyclopentadiene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Hexachloroethane	EPA 8270	Extractable Organics	NELAP	5/30/2007
Indeno(1,2,3-cd)pyrene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Iron	EPA 6020	Metals	NELAP	5/30/2007
Isophorone	EPA 8270	Extractable Organics	NELAP	5/30/2007
Lead	EPA 6020	Metals	NELAP	5/30/2007
Lithium	EPA 6020	Metals	NELAP	5/15/2009
Magnesium	EPA 6020	Metals	NELAP	5/30/2007
Manganese	EPA 6020	Metals	NELAP	5/30/2007
Mercury	EPA 245.6	General Chemistry	NELAP	5/30/2007
Mercury	EPA 6020	Metals	NELAP	3/19/2012
Mercury	EPA 7471	Metals	NELAP	5/30/2007
Methoxychlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Mirex	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Molybdenum	EPA 6020	Metals	NELAP	5/30/2007
Naphthalene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Nickel	EPA 6020	Metals	NELAP	5/30/2007
Nitrobenzene	EPA 8270	Extractable Organics	NELAP	5/30/2007

Laboratory Scope of Accreditation

Attachment to Certificate #: E87948-21, expiration date June 30, 2013. This listing of accredited analytes should be used only when associated with a valid certificate.

State Laboratory ID: E87948 **EPA Lab Code:** WI01103 (920) 469-2436

E87948
Pace Analytical Services, Inc - Green Bay #1
1241 Bellevue Street
Green Bay, WI 54302

Matrix: Biological Tissue

Analyte	Method/Tech	Category	Certification Type	Effective Date
n-Nitrosodi-n-propylamine	EPA 8270	Extractable Organics	NELAP	5/30/2007
n-Nitrosodiphenylamine	EPA 8270	Extractable Organics	NELAP	5/30/2007
Pentachlorophenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
Phenanthrene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Phenol	EPA 8270	Extractable Organics	NELAP	5/30/2007
Potassium	EPA 6020	Metals	NELAP	5/30/2007
Pyrene	EPA 8270	Extractable Organics	NELAP	5/30/2007
Selenium	EPA 6020	Metals	NELAP	5/30/2007
Silver	EPA 6020	Metals	NELAP	5/30/2007
Sodium	EPA 6020	Metals	NELAP	5/30/2007
Strontium	EPA 6020	Metals	NELAP	5/30/2007
Thallium	EPA 6020	Metals	NELAP	5/30/2007
Titanium	EPA 6020	Metals	NELAP	5/30/2007
Toxaphene (Chlorinated camphene)	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
trans-Nonachlor	EPA 8081	Pesticides-Herbicides-PCB's	NELAP	5/30/2007
Vanadium	EPA 6020	Metals	NELAP	5/30/2007
Zinc	EPA 6020	Metals	NELAP	5/30/2007

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NEW YORK
state department of
HEALTH

Nirav R. Shah, M.D., M.P.H.
Commissioner

Sue Kelly
Executive Deputy Commissioner

LAB ID: 11888

April 17, 2013

MR. NILS K. MELBERG
PACE ANALYTICAL SERVICES, INC. - GREEN BAY #1
1241 BELLEVUE STREET
GREEN BAY, WI 54302

Certificate Expiration Date:
April 01, 2014

Dear Mr. Melberg,

Enclosed are revised Certificate(s) of Approval issued to your environmental laboratory for the current permit year. The Certificate(s) supersede(s) any previously issued one(s) and are in effect through the expiration date listed. Please carefully examine the Certificate(s) to insure that the categories, subcategories, analytes, and methods for which your laboratory is approved are correct. In addition, verify that your laboratory's name, address, lead technical director, and identification number are accurate.

Pursuant to NYCRR Subpart 55-2.2, original certificates must be posted conspicuously in the laboratory and copies shall be made available to any client of the laboratory upon request.

Pursuant to NYCRR Subpart 55-2.6, any misrepresentation of the Fields of Accreditation (Matrix - Method - Analyte) for which your laboratory is approved may result in denial, suspension, or revocation of your certification. Any use of the Environmental Laboratory Approval Program (ELAP) or National Environmental Laboratory Accreditation Program (NELAP) name, reference to the laboratory's approval status, and/or using the NELAP logo in any catalogs, advertising, business solicitations, proposals, quotations, laboratory analytical reports, or other materials must include the laboratory's ELAP identification number and distinguish between testing for which the laboratory is approved and testing for which the laboratory is not approved.

If the changes to your certificate are due to insufficient proficiency tests and/or proficiency test (PT) failures, the expired certificates (listed below) must be returned to the ELAP office within 10 days of the date of this letter. In addition, your laboratory must investigate and document the root cause for any insufficient and/or unsatisfactory proficiency tests.

If you have any questions, please contact ELAP at the New York State Department of Health (NYS DOH), Wadsworth Center, PO Box 509, Albany NY, 12201-0509; by phone at (518) 485-5570; by facsimile at (518) 485-5568; and by email at elap@health.state.ny.us.

Expired Certificates:
48942 SW NELAC

Sincerely,

Stephanie E. Ostrowski

STEPHANIE OSTROWSKI, PH.D.
Program Director
Environmental Laboratory Approval Program

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NEW YORK
state department of
HEALTH

Nirav R. Shah, M.D., M.P.H.
Commissioner

Sue Kelly
Executive Deputy Commissioner

LAB ID: 11888

April 17, 2013

MR. NILS K. MELBERG
PACE ANALYTICAL SERVICES, INC. - GREEN BAY #1
1241 BELLEVUE STREET
GREEN BAY, WI 54302

Dear Mr. Melberg,

A revised certificate has been generated because of the change(s) listed below.

If the changes to your certification are due to insufficient proficiency tests and/or proficiency test (PT) failures, the expired certificates must be returned to the Environmental Laboratory Approval Program (ELAP) office within 10 days of the date of this letter. In addition, your laboratory must investigate the root cause for any insufficient and/or unsatisfactory proficiency tests.

In addition, your laboratory must investigate and document the root cause for any insufficient and/or unsatisfactory proficiency tests. If your lab lost accreditation due to two PT failures, you must submit the corrective action response to ELAP for review before accreditation will be re-instated.

AppCat	Analyte Name Method Name	Comments	Date
SW - NELAC	Beryllium, Total EPA 3010A	Dropped from Approved	04/16/2013

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013
Revised April 17, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. NILS K. MELBERG
PACE ANALYTICAL SERVICES, INC. - GREEN BAY #1
1241 BELLEVUE STREET
GREEN BAY, WI 54302

NY Lab Id No: 11888

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides

4,4'-DDD	EPA 8081A
4,4'-DDE	EPA 8081A
4,4'-DDT	EPA 8081A
Aldrin	EPA 8081A
alpha-BHC	EPA 8081A
alpha-Chlordane	EPA 8081A
beta-BHC	EPA 8081A
Chlordane Total	EPA 8081A
delta-BHC	EPA 8081A
Dieldrin	EPA 8081A
Endosulfan I	EPA 8081A
Endosulfan II	EPA 8081A
Endosulfan sulfate	EPA 8081A
Endrin	EPA 8081A
Endrin aldehyde	EPA 8081A
Endrin Ketone	EPA 8081A
gamma-Chlordane	EPA 8081A
Heptachlor	EPA 8081A
Heptachlor epoxide	EPA 8081A
Lindane	EPA 8081A
Methoxychlor	EPA 8081A
Toxaphene	EPA 8081A

Low Level Polynuclear Aromatic Hydrocarbons

Acenaphthene Low Level	EPA 8270C SIM
Acenaphthylene Low Level	EPA 8270C SIM

Low Level Polynuclear Aromatic Hydrocarbons

Anthracene Low Level	EPA 8270C SIM
Benzo(a)anthracene Low Level	EPA 8270C SIM
Benzo(a)pyrene Low Level	EPA 8270C SIM
Benzo(b)fluoranthene Low Level	EPA 8270C SIM
Benzo(g,h,i)perylene Low Level	EPA 8270C SIM
Benzo(k)fluoranthene Low Level	EPA 8270C SIM
Chrysene Low Level	EPA 8270C SIM
Dibenzo(a,h)anthracene Low Level	EPA 8270C SIM
Fluoranthene Low Level	EPA 8270C SIM
Fluorene Low Level	EPA 8270C SIM
Indeno(1,2,3-cd)pyrene Low Level	EPA 8270C SIM
Naphthalene Low Level	EPA 8270C SIM
Phenanthrene Low Level	EPA 8270C SIM
Pyrene Low Level	EPA 8270C SIM

Metals I

Barium, Total	EPA 6020
Cadmium, Total	EPA 6020
Chromium, Total	EPA 6020
Copper, Total	EPA 6020
Lead, Total	EPA 6020
Manganese, Total	EPA 6020
Nickel, Total	EPA 6020
Silver, Total	EPA 6020

Metals II

Aluminum, Total	EPA 6020

Serial No.: 49061

Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify the laboratory's accreditation status.

COPY·COPY·COPY·

The Commonwealth of Massachusetts

Department of Environmental Protection

Division of Environmental Analysis
Senator William X. Wall Experiment Station

certifies

M-NJ141

ACCUTEST LABORATORIES
2235 RTE 130 BLDG B
DAYTON, NJ 08810-0000

Laboratory Director: **NANCY COLE**

for the analysis of **POTABLE WATER (CHEMISTRY)**
NON POTABLE WATER (CHEMISTRY)

pursuant to 310 CMR 42.00

This certificate supersedes all previous Massachusetts certificates issued to this laboratory. The laboratory is regulated by and shall be responsible for being in compliance with Massachusetts regulations at 310 CMR 42.00.

This certificate is valid only when accompanied by the latest dated Certified Parameter List as issued by the Massachusetts D.E.P. Contact the Division of Environmental Analysis to verify the current certification status of the laboratory.

Certification is no guarantee of the validity of the data. This certification is subject to unannounced laboratory inspections.

Issued: **06 NOV 2012**

Expires: **30 JUN 2013**

Oscar C. Zaccaba

Director, Division of Environmental Analysis

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 01 JUL 2012

M-NJ141 **ACCUTEST LABORATORIES**
DAYTON NJ

NON POTABLE WATER (CHEMISTRY) **Effective Date** **01 JUL 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
ALUMINUM	EPA 200.7
ALUMINUM	EPA 200.8
ANTIMONY	EPA 200.7
ANTIMONY	EPA 200.8
ARSENIC	EPA 200.7
ARSENIC	EPA 200.8
BERYLLIUM	EPA 200.7
BERYLLIUM	EPA 200.8
CADMIUM	EPA 200.7
CADMIUM	EPA 200.8
CHROMIUM	EPA 200.7
CHROMIUM	EPA 200.8
COBALT	EPA 200.7
COBALT	EPA 200.8
COPPER	EPA 200.7
COPPER	EPA 200.8
IRON	EPA 200.7
LEAD	EPA 200.7
LEAD	EPA 200.8
MANGANESE	EPA 200.7
MANGANESE	EPA 200.8
MERCURY	EPA 245.1
MOLYBDENUM	EPA 200.7
MOLYBDENUM	EPA 200.8
NICKEL	EPA 200.7
NICKEL	EPA 200.8
SELENIUM	EPA 200.7
SELENIUM	EPA 200.8
SILVER	EPA 200.7
SILVER	EPA 200.8
THALLIUM	EPA 200.7
THALLIUM	EPA 200.8
TITANIUM	EPA 200.7
VANADIUM	EPA 200.7
VANADIUM	EPA 200.8
ZINC	EPA 200.7
ZINC	EPA 200.8
PH	SM 4500-H-B
SPECIFIC CONDUCTIVITY	SM 2510B
TOTAL DISSOLVED SOLIDS	SM 2540C
HARDNESS (CACO3), TOTAL	EPA 200.7
CALCIUM	EPA 200.7
MAGNESIUM	EPA 200.7

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 01 JUL 2012

M-NJ141 **ACCUTEST LABORATORIES**
DAYTON NJ

NON POTABLE WATER (CHEMISTRY) **Effective Date** **01 JUL 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
SODIUM	EPA 200.7
POTASSIUM	EPA 200.7
ALKALINITY, TOTAL	SM 2320B
CHLORIDE	SM 4500-CL-C
CHLORIDE	EPA 300.0
FLUORIDE	EPA 300.0
SULFATE	EPA 300.0
AMMONIA-N	SM18-B,H/19,20-B,G-AP
NITRATE-N	EPA 353.2
KJELDAHL-N	EPA 351.2
ORTHOPHOSPHATE	SM 4500-P-E
PHOSPHORUS, TOTAL	EPA 365.3
BIOCHEMICAL OXYGEN DEMAND	SM 5210B
TOTAL ORGANIC CARBON	SM 5310B
CYANIDE, TOTAL	EPA 335.4
NON-FILTERABLE RESIDUE	SM 2540D
OIL AND GREASE	EPA 1664
VOLATILE HALOCARBONS	EPA 624
VOLATILE AROMATICS	EPA 624
CHLORDANE	EPA 608
ALDRIN	EPA 608
DIELDRIN	EPA 608
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
HEPTACHLOR	EPA 608
HEPTACHLOR EPOXIDE	EPA 608
POLYCHLORINATED BIPHENYLS (WATEF	EPA 608

POTABLE WATER (CHEMISTRY) **Effective Date** **01 JUL 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
ANTIMONY	EPA 200.8
ARSENIC	EPA 200.8
BARIUM	EPA 200.7
BARIUM	EPA 200.8
BERYLLIUM	EPA 200.7
BERYLLIUM	EPA 200.8
CADMIUM	EPA 200.7
CADMIUM	EPA 200.8
CHROMIUM	EPA 200.7
CHROMIUM	EPA 200.8
COPPER	EPA 200.7

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 01 JUL 2012

M-NJ141 **ACCUTEST LABORATORIES**
DAYTON NJ

POTABLE WATER (CHEMISTRY) **Effective Date** **01 JUL 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
COPPER	EPA 200.8
LEAD	EPA 200.8
MERCURY	EPA 245.1
NICKEL	EPA 200.7
NICKEL	EPA 200.8
SELENIUM	EPA 200.8
THALLIUM	EPA 200.8
NITRATE-N	EPA 353.2
FLUORIDE	EPA 300.0
SODIUM	EPA 200.7
CYANIDE, TOTAL	EPA 335.4
TURBIDITY	EPA 180.1
CALCIUM	EPA 200.7
ALKALINITY, TOTAL	SM 2320B
TOTAL DISSOLVED SOLIDS	SM 2540C
PH	SM 4500-H-B
VOLATILE ORGANIC COMPOUNDS	EPA 524.2

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
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MS. NANCY COLE
ACCUTEST LABORATORIES
2235 ROUTE 130-BLDG B
DAYTON, NJ 08810

NY Lab Id No: 10983

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved analytes are listed below:

Acrylates	
Ethyl acrylate	EPA TO-15
Methyl methacrylate	EPA TO-15
Chlorinated Hydrocarbons	
1,2,4-Trichlorobenzene	EPA TO-15
Hexachlorobutadiene	EPA TO-15
Hexachloroethane	EPA TO-15
Purgeable Aromatics	
1,2,4-Trimethylbenzene	EPA TO-15
1,2-Dichlorobenzene	EPA TO-15
1,3,5-Trimethylbenzene	EPA TO-15
1,3-Dichlorobenzene	EPA TO-15
1,4-Dichlorobenzene	EPA TO-15
2-Chlorotoluene	EPA TO-15
Benzene	EPA TO-15
	EPA TO-3
Chlorobenzene	EPA TO-15
Ethyl benzene	EPA TO-15
Isopropylbenzene	EPA TO-15
m/p-Xylenes	EPA TO-15
o-Xylene	EPA TO-15
Styrene	EPA TO-15
Toluene	EPA TO-15
Total Xylenes	EPA TO-15

Purgeable Halocarbons	
1,1,1-Trichloroethane	EPA TO-15
1,1,2,2-Tetrachloroethane	EPA TO-15
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA TO-15
1,1,2-Trichloroethane	EPA TO-15
1,1-Dichloroethane	EPA TO-15
1,1-Dichloroethene	EPA TO-15
1,2-Dibromo-3-chloropropane	EPA TO-15
1,2-Dibromoethane	EPA TO-15
1,2-Dichloroethane	EPA TO-15
1,2-Dichloropropane	EPA TO-15
Bromodichloromethane	EPA TO-15
Bromoform	EPA TO-15
Bromomethane	EPA TO-15
Carbon tetrachloride	EPA TO-15
Chloroethane	EPA TO-15
Chloroform	EPA TO-15
Chloromethane	EPA TO-15
cis-1,2-Dichloroethene	EPA TO-15
cis-1,3-Dichloropropene	EPA TO-15
Dibromochloromethane	EPA TO-15
Dichlorodifluoromethane	EPA TO-15
Methylene chloride	EPA TO-15
Tetrachloroethene	EPA TO-15
trans-1,2-Dichloroethene	EPA TO-15
trans-1,3-Dichloropropene	EPA TO-15
Trichloroethene	EPA TO-15

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All approved analytes are listed below:

Purgeable Halocarbons	
Trichlorofluoromethane	EPA TO-15
Vinyl bromide	EPA TO-15
Vinyl chloride	EPA TO-15
Volatile Chlorinated Organics	
Benzyl chloride	EPA TO-15
Epichlorohydrin	EPA TO-15
Volatile Organics	
1,2-Dichlorotetrafluoroethane	EPA TO-15
1,3-Butadiene	EPA TO-15
1,4-Dioxane	EPA TO-15
2,2,4-Trimethylpentane	EPA TO-15
2-Butanone (Methylethyl ketone)	EPA TO-15
4-Methyl-2-Pentanone	EPA TO-15
Acetone	EPA TO-15
Carbon Disulfide	EPA TO-15
Cyclohexane	EPA TO-15
Hexane	EPA TO-15
Isopropanol	EPA TO-15
Methanol	EPA TO-15
Methyl iodide	EPA TO-15
Methyl tert-butyl ether	EPA TO-15
n-Heptane	EPA TO-15
Nitrobenzene	EPA TO-15
tert-butyl alcohol	EPA TO-15
Vinyl acetate	EPA TO-15

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All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 603
	EPA 624
	EPA 8260B
Acrylonitrile	EPA 603
	EPA 624
	EPA 8260B
Ethyl methacrylate	EPA 8260B
Methyl acrylonitrile	EPA 8260B
Methyl methacrylate	EPA 8260B
Amines	
1,4-Phenylenediamine	EPA 8270C
	EPA 8270D
1-Naphthylamine	EPA 8270D
2-Naphthylamine	EPA 8270C
	EPA 8270D
2-Nitroaniline	EPA 8270C
	EPA 8270D
3-Nitroaniline	EPA 8270C
	EPA 8270D
4-Chloroaniline	EPA 8270C
	EPA 8270D
4-Nitroaniline	EPA 8270C
	EPA 8270D
5-Nitro-o-toluidine	EPA 8270C
	EPA 8270D

Amines	
a,a-Dimethylphenethylamine	EPA 8270C
	EPA 8270D
Aniline	EPA 8270C
	EPA 8270D
Carbazole	EPA 8270C
	EPA 8270D
Diphenylamine	EPA 8270C
	EPA 8270D
Methapyrilene	EPA 8270C
	EPA 8270D
Pronamide	EPA 8270C
	EPA 8270D
Propionitrile	EPA 8260B
Pyridine	EPA 625
	EPA 8270C
	EPA 8270D
Bacteriology	
Coliform, Fecal	SM 18-21 9222D (97)
Coliform, Total	SM 18-21 9222B (97)
Standard Plate Count	SM 18-21 9215B
Benzidines	
3,3'-Dichlorobenzidine	EPA 625
	EPA 8270C
	EPA 8270D
3,3'-Dimethylbenzidine	EPA 8270C

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Benzidines	
3,3'-Dimethylbenzidine	EPA 8270D
Benzidine	EPA 625
	EPA 8270C
	EPA 8270D
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 608
	EPA 8081A
	EPA 8081B
4,4'-DDE	EPA 608
	EPA 8081A
	EPA 8081B
4,4'-DDT	EPA 608
	EPA 8081A
	EPA 8081B
Aldrin	EPA 608
	EPA 8081A
	EPA 8081B
alpha-BHC	EPA 608
	EPA 8081A
	EPA 8081B
alpha-Chlordane	EPA 8081A
	EPA 8081B
beta-BHC	EPA 608
	EPA 8081A
	EPA 8081B
Chlorinated Hydrocarbon Pesticides	
Chlordane Total	EPA 608
	EPA 8081A
	EPA 8081B
Chlorobenzilate	EPA 8270C
	EPA 8270D
delta-BHC	EPA 608
	EPA 8081A
	EPA 8081B
Diallate	EPA 8270C
	EPA 8270D
Dieldrin	EPA 608
	EPA 8081A
	EPA 8081B
Endosulfan I	EPA 608
	EPA 8081A
	EPA 8081B
Endosulfan II	EPA 608
	EPA 8081A
	EPA 8081B
Endosulfan sulfate	EPA 608
	EPA 8081A
	EPA 8081B
Endrin	EPA 608
	EPA 8081A
	EPA 8081B
Endrin aldehyde	EPA 608

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Chlorinated Hydrocarbon Pesticides	
Endrin aldehyde	EPA 8081A
	EPA 8081B
Endrin Ketone	EPA 8081A
	EPA 8081B
gamma-Chlordane	EPA 8081A
	EPA 8081B
Heptachlor	EPA 608
	EPA 8081A
	EPA 8081B
Heptachlor epoxide	EPA 608
	EPA 8081A
	EPA 8081B
Isodrin	EPA 8270C
	EPA 8270D
Kepone	EPA 8270C
	EPA 8270D
Lindane	EPA 608
	EPA 8081A
	EPA 8081B
Methoxychlor	EPA 608
	EPA 8081A
	EPA 8081B
Mirex	EPA 8081A
	EPA 8081B
Toxaphene	EPA 608
	EPA 8081A

Chlorinated Hydrocarbon Pesticides	
Toxaphene	EPA 8081B
Chlorinated Hydrocarbons	
1,2,3-Trichlorobenzene	EPA 8260B
1,2,4,5-Tetrachlorobenzene	EPA 8270C
	EPA 8270D
1,2,4-Trichlorobenzene	EPA 625
	EPA 8270C
	EPA 8270D
2-Chloronaphthalene	EPA 625
	EPA 8270C
	EPA 8270D
Hexachlorobenzene	EPA 625
	EPA 8270C
	EPA 8270D
Hexachlorobutadiene	EPA 625
	EPA 8270C
	EPA 8270D
Hexachlorocyclopentadiene	EPA 625
	EPA 8270C
	EPA 8270D
Hexachloroethane	EPA 625
	EPA 8270C
	EPA 8270D
Hexachloropropene	EPA 8270C
	EPA 8270D

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Chlorinated Hydrocarbons	
Pentachlorobenzene	EPA 8270C
	EPA 8270D
Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
2,4-DB	EPA 8151A
Dalapon	EPA 8151A
Dicamba	EPA 8151A
Dichloroprop	EPA 8151A
Dinoseb	EPA 8151A
	EPA 8270C
	EPA 8270D
Demand	
Biochemical Oxygen Demand	SM 18-21 5210B (01)
Carbonaceous BOD	SM 18-21 5210B (01)
Chemical Oxygen Demand	SM 18-21 5220C (97)
Dissolved Gases	
Ethane	RSK-175
Ethene (Ethylene)	RSK-175
Methane	RSK-175
Propane	RSK-175
Fuel Oxygenates	
Di-isopropyl ether	EPA 8260B
Fuel Oxygenates	
Ethanol	EPA 8015B
	EPA 8015C
	EPA 8260B
Methyl tert-butyl ether	EPA 8021B
	EPA 8260B
tert-butyl alcohol	EPA 8015B
	EPA 8015C
	EPA 8260B
tert-butyl ethyl ether (ETBE)	EPA 8260B
Haloethers	
4-Bromophenylphenyl ether	EPA 625
	EPA 8270C
	EPA 8270D
4-Chlorophenylphenyl ether	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-chloroethyl)ether	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-chloroisopropyl) ether	EPA 625
	EPA 8270C
	EPA 8270D

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Low Level Polynuclear Aromatics	
Acenaphthene Low Level	EPA 8310
Acenaphthylene Low Level	EPA 8310
Anthracene Low Level	EPA 8310
Benzo(a)anthracene Low Level	EPA 8270C SIM
	EPA 8270D SIM
	EPA 8310
Benzo(a)pyrene Low Level	EPA 8270C SIM
	EPA 8270D SIM
	EPA 8310
Benzo(b)fluoranthene Low Level	EPA 8270C SIM
	EPA 8270D SIM
	EPA 8310
Benzo(g,h,i)perylene Low Level	EPA 8310
Benzo(k)fluoranthene Low Level	EPA 8270C SIM
	EPA 8270D SIM
	EPA 8310
Chrysene Low Level	EPA 8310
Dibenzo(a,h)anthracene Low Level	EPA 8270C SIM
	EPA 8270D SIM
	EPA 8310
Fluoranthene Low Level	EPA 8310
Fluorene Low Level	EPA 8310
Indeno(1,2,3-cd)pyrene Low Level	EPA 8270C SIM
	EPA 8270D SIM
	EPA 8310
Naphthalene Low Level	EPA 8310

Low Level Polynuclear Aromatics	
Phenanthrene Low Level	EPA 8310
Pyrene Low Level	EPA 8310
Mineral	
Acidity	SM 18-21 2310B.4a (97)
Alkalinity	SM 18-21 2320B (97)
Chloride	EPA 300.0 Rev. 2.1
	EPA 9056A
	SM 18-20 4500-Cl- C
Fluoride, Total	EPA 300.0 Rev. 2.1
	EPA 9056A
Hardness, Total	EPA 200.7 Rev. 4.4
	SM 18-21 2340C (97)
Sulfate (as SO4)	EPA 300.0 Rev. 2.1
	EPA 9056A
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270C
	EPA 8270D
1,3-Dinitrobenzene	EPA 8270C
	EPA 8270D
1,4-Naphthoquinone	EPA 8270C
	EPA 8270D
2,4-Dinitrotoluene	EPA 625
	EPA 8270C
	EPA 8270D
2,6-Dinitrotoluene	EPA 625

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All approved analytes are listed below:

Nitroaromatics and Isophorone	
2,6-Dinitrotoluene	EPA 8270C
	EPA 8270D
Isophorone	EPA 625
	EPA 8270C
	EPA 8270D
Nitrobenzene	EPA 625
	EPA 8270C
	EPA 8270D
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270C
	EPA 8270D
N-Nitrosodimethylamine	EPA 625
	EPA 8270C
	EPA 8270D
N-Nitrosodi-n-butylamine	EPA 8270C
	EPA 8270D
N-Nitrosodi-n-propylamine	EPA 625
	EPA 8270C
	EPA 8270D
N-Nitrosodiphenylamine	EPA 625
	EPA 8270C
	EPA 8270D
N-nitrosomethylethylamine	EPA 8270C
	EPA 8270D
N-nitrosomorpholine	EPA 8270C

Nitrosoamines	
N-nitrosomorpholine	EPA 8270D
N-nitrosopiperidine	EPA 8270C
	EPA 8270D
N-Nitrosopyrrolidine	EPA 8270C
	EPA 8270D
Nutrient	
Ammonia (as N)	SM 19-21 4500-NH3 G (97)
Kjeldahl Nitrogen, Total	EPA 351.2 Rev. 2.0
Nitrate (as N)	EPA 353.2 Rev. 2.0
Nitrite (as N)	SM 18-21 4500-NO2 B (00)
Orthophosphate (as P)	SM 18-21 4500-P E
Phosphorus, Total	EPA 365.3 Rev. 1978
Organophosphate Pesticides	
Atrazine	EPA 8270C
	EPA 8270D
Dimethoate	EPA 8270C
	EPA 8270D
Disulfoton	EPA 8270C
	EPA 8270D
Famphur	EPA 8270C
	EPA 8270D
Parathion methyl	EPA 8270C
	EPA 8270D
Phorate	EPA 8270C
	EPA 8270D

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Organophosphate Pesticides		**Polychlorinated Biphenyls**	
Thionazin	EPA 8270C	PCB-1016	EPA 608
	EPA 8270D		EPA 8082
Petroleum Hydrocarbons			EPA 8082A
Diesel Range Organics	EPA 8015C	PCB-1221	EPA 608
Gasoline Range Organics	EPA 8015C		EPA 8082
			EPA 8082A
Phthalate Esters		PCB-1232	EPA 608
Benzyl butyl phthalate	EPA 625		EPA 8082
	EPA 8270C		EPA 8082A
	EPA 8270D	PCB-1242	EPA 608
Bis(2-ethylhexyl) phthalate	EPA 625		EPA 8082
	EPA 8270C		EPA 8082A
	EPA 8270D	PCB-1248	EPA 608
Diethyl phthalate	EPA 625		EPA 8082
	EPA 8270C		EPA 8082A
	EPA 8270D	PCB-1254	EPA 608
Dimethyl phthalate	EPA 625		EPA 8082
	EPA 8270C		EPA 8082A
	EPA 8270D	PCB-1260	EPA 608
Di-n-butyl phthalate	EPA 625		EPA 8082
	EPA 8270C		EPA 8082A
	EPA 8270D	PCB-1262	EPA 8082A
Di-n-octyl phthalate	EPA 625	PCB-1268	EPA 8082A
	EPA 8270C	**Polynuclear Aromatics**	
	EPA 8270D	2-Acetylaminofluorene	EPA 8270C

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Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MS. NANCY COLE
ACCUTEST LABORATORIES
2235 ROUTE 130-BLDG B
DAYTON, NJ 08810

NY Lab Id No: 10983

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Polynuclear Aromatics	
2-Acetylaminofluorene	EPA 8270D
3-Methylcholanthrene	EPA 8270C
	EPA 8270D
7,12-Dimethylbenzyl (a) anthracene	EPA 8270C
	EPA 8270D
Acenaphthene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Acenaphthylene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Anthracene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Benzo(a)anthracene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Benzo(a)pyrene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Benzo(b)fluoranthene	EPA 625

Polynuclear Aromatics	
Benzo(b)fluoranthene	EPA 8100
	EPA 8270C
	EPA 8270D
Benzo(ghi)perylene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Benzo(k)fluoranthene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Chrysene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Dibenzo(a,h)anthracene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Fluoranthene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Fluorene	EPA 625
	EPA 8100
	EPA 8270C

Serial No.: 48496

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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Polynuclear Aromatics	
Fluorene	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Naphthalene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Phenanthrene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Pyrene	EPA 625
	EPA 8100
	EPA 8270C
	EPA 8270D
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270C
	EPA 8270D
2,4,5-Trichlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4,6-Trichlorophenol	EPA 625
	EPA 8270C

Priority Pollutant Phenols	
2,4,6-Trichlorophenol	EPA 8270D
2,4-Dichlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4-Dimethylphenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4-Dinitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
2-Chlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
2-Methylphenol	EPA 8270C
	EPA 8270D
2-Nitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
3-Methylphenol	EPA 8270C
	EPA 8270D
4-Chloro-3-methylphenol	EPA 625
	EPA 8270C
	EPA 8270D

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Priority Pollutant Phenols	
4-Methylphenol	EPA 8270C
	EPA 8270D
4-Nitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
Pentachlorophenol	EPA 625
	EPA 8151A
	EPA 8270C
	EPA 8270D
Phenol	EPA 625
	EPA 8270C
	EPA 8270D
Residue	
Settleable Solids	SM 18-21 2540 F (97)
Solids, Total	SM 18-21 2540B (97)
Solids, Total Dissolved	SM 18-21 2540C (97)
Solids, Total Suspended	SM 18-21 2540D (97)
Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270C
	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270C

Semi-Volatile Organics	
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
2-Methylnaphthalene	EPA 8270C
	EPA 8270D
4-Amino biphenyl	EPA 8270C
	EPA 8270D
Acetophenone	EPA 8270C
	EPA 8270D
Aramite	EPA 8270C
	EPA 8270D
Benzaldehyde	EPA 8270C
	EPA 8270D
Benzoic Acid	EPA 8270C
	EPA 8270D
Benzyl alcohol	EPA 8270C
	EPA 8270D
Caprolactam	EPA 8270C
	EPA 8270D
Dibenzofuran	EPA 8270C
	EPA 8270D
Ethyl methanesulfonate	EPA 8270C
	EPA 8270D
Isosafrole	EPA 8270C
	EPA 8270D
Methyl methanesulfonate	EPA 8270C
	EPA 8270D
O,O,O-Triethyl phosphorothioate	EPA 8270C

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Semi-Volatile Organics	
O,O,O-Triethyl phosphorothioate	EPA 8270D
Phenacetin	EPA 8270C
	EPA 8270D
Safrole	EPA 8270C
	EPA 8270D
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260B
1,2,4-Trimethylbenzene	EPA 8260B
1,2-Dichlorobenzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
1,3,5-Trimethylbenzene	EPA 8260B
1,3-Dichlorobenzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
1,4-Dichlorobenzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
2-Chlorotoluene	EPA 8260B
4-Chlorotoluene	EPA 8260B
Benzene	EPA 602
	EPA 624

Volatile Aromatics	
Benzene	EPA 8021B
	EPA 8260B
Chlorobenzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Ethyl benzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Isopropylbenzene	EPA 8260B
Naphthalene, Volatile	EPA 8260B
n-Butylbenzene	EPA 8260B
n-Propylbenzene	EPA 8260B
p-Isopropyltoluene (P-Cymene)	EPA 8260B
sec-Butylbenzene	EPA 8260B
Styrene	EPA 624
	EPA 8021B
	EPA 8260B
tert-Butylbenzene	EPA 8260B
Toluene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Total Xylenes	EPA 602
	EPA 624

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Volatile Aromatics	
Total Xylenes	EPA 8021B
	EPA 8260B
Volatile Chlorinated Organics	
Benzyl chloride	EPA 8260B
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260B
1,1,1-Trichloroethane	EPA 624
	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 624
	EPA 8260B
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
1,1,2-Trichloroethane	EPA 624
	EPA 8260B
1,1-Dichloroethane	EPA 624
	EPA 8260B
1,1-Dichloroethene	EPA 624
	EPA 8260B
1,1-Dichloropropene	EPA 8260B
1,2,3-Trichloropropane	EPA 8260B
1,2-Dibromo-3-chloropropane	EPA 8011
	EPA 8260B
1,2-Dibromoethane	EPA 8011
	EPA 8260B
1,2-Dichloroethane	EPA 624
	EPA 8260B

Volatile Halocarbons	
1,2-Dichloropropane	EPA 624
	EPA 8260B
1,3-Dichloropropane	EPA 8260B
2,2-Dichloropropane	EPA 8260B
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B
2-Chloroethylvinyl ether	EPA 624
	EPA 8260B
3-Chloropropene (Allyl chloride)	EPA 8260B
Bromochloromethane	EPA 8260B
Bromodichloromethane	EPA 624
	EPA 8260B
Bromoform	EPA 624
	EPA 8260B
Bromomethane	EPA 624
	EPA 8260B
Carbon tetrachloride	EPA 624
	EPA 8260B
Chloroethane	EPA 624
	EPA 8260B
Chloroform	EPA 624
	EPA 8260B
Chloromethane	EPA 624
	EPA 8260B
cis-1,2-Dichloroethene	EPA 624
	EPA 8021B
	EPA 8260B

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Volatile Halocarbons	
cis-1,3-Dichloropropene	EPA 624
	EPA 8021B
	EPA 8260B
Dibromochloromethane	EPA 624
	EPA 8260B
Dibromomethane	EPA 8260B
Dichlorodifluoromethane	EPA 624
	EPA 8260B
Hexachlorobutadiene, Volatile	EPA 8260B
Methyl iodide	EPA 8260B
Methylene chloride	EPA 624
	EPA 8260B
Tetrachloroethene	EPA 624
	EPA 8021B
	EPA 8260B
trans-1,2-Dichloroethene	EPA 624
	EPA 8021B
	EPA 8260B
trans-1,3-Dichloropropene	EPA 624
	EPA 8021B
	EPA 8260B
trans-1,4-Dichloro-2-butene	EPA 8260B
Trichloroethene	EPA 624
	EPA 8021B
	EPA 8260B
Trichlorofluoromethane	EPA 624

Volatile Halocarbons	
Trichlorofluoromethane	EPA 8260B
Vinyl chloride	EPA 624
	EPA 8260B
Volatiles Organics	
1,4-Dioxane	EPA 8260B
2-Butanone (Methylethyl ketone)	EPA 8260B
2-Hexanone	EPA 8260B
4-Methyl-2-Pentanone	EPA 8260B
Acetone	EPA 8260B
Acetonitrile	EPA 8260B
Carbon Disulfide	EPA 8260B
Cyclohexane	EPA 8260B
Ethyl Acetate	EPA 8260B
Isobutyl alcohol	EPA 8015B
	EPA 8260B
Methyl acetate	EPA 8260B
Vinyl acetate	EPA 8260B
Wastewater Metals I	
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Cadmium, Total	EPA 200.7 Rev. 4.4

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All approved analytes are listed below:

Wastewater Metals I		Wastewater Metals I	
Cadmium, Total	EPA 200.8 Rev. 5.4	Lead, Total	EPA 200.7 Rev. 4.4
	EPA 6010B		EPA 200.8 Rev. 5.4
	EPA 6010C		EPA 6010B
	EPA 6020		EPA 6010C
	EPA 6020A		EPA 6020
Calcium, Total	EPA 200.7 Rev. 4.4		EPA 6020A
	EPA 6010B	Magnesium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C		EPA 6010B
Chromium, Total	EPA 200.7 Rev. 4.4		EPA 6010C
	EPA 200.8 Rev. 5.4	Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 6010B		EPA 200.8 Rev. 5.4
	EPA 6010C		EPA 6010B
	EPA 6020		EPA 6010C
	EPA 6020A		EPA 6020
Copper, Total	EPA 200.7 Rev. 4.4		EPA 6020A
	EPA 200.8 Rev. 5.4	Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 6010B		EPA 200.8 Rev. 5.4
	EPA 6010C		EPA 6010B
	EPA 6020		EPA 6010C
	EPA 6020A		EPA 6020
Iron, Total	EPA 200.7 Rev. 4.4		EPA 6020A
	EPA 200.8 Rev. 5.4	Potassium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B		EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020	Silver, Total	EPA 200.7 Rev. 4.4
	EPA 6020A		EPA 200.8 Rev. 5.4

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Wastewater Metals I	
Silver, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Sodium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
	EPA 6010C
Strontium, Total	EPA 6010B
	EPA 6010C
Wastewater Metals II	
Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Antimony, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Arsenic, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B

Wastewater Metals II	
Arsenic, Total	EPA 6010C
	EPA 6020
	EPA 6020A
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Chromium VI	EPA 218.6 Rev. 3.3
	EPA 7196A
	EPA 7199
	SM 18-19 3500-Cr D
Mercury, Low Level	EPA 1631E
	EPA 245.7 Rev. 2.0
Mercury, Total	EPA 245.1 Rev. 3.0
	EPA 7470A
Selenium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B

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Wastewater Metals II

Vanadium, Total	EPA 6010C
	EPA 6020
	EPA 6020A
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A

Wastewater Metals III

Cobalt, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Molybdenum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Thallium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B

Wastewater Metals III

Thallium, Total	EPA 6010C
	EPA 6020
	EPA 6020A
Tin, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
	EPA 6010C
Titanium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
	EPA 6010C

Wastewater Miscellaneous

Boron, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Bromide	EPA 300.0 Rev. 2.1
	EPA 9056A
Color	SM 18-21 2120B (01)
Cyanide, Total	EPA 335.4 Rev. 1.0
	SM 18-21 4500-CN E (99)
Oil and Grease Total Recoverable (HEM	EPA 1664A
Organic Carbon, Total	SM 18-21 5310B (00)
Phenols	EPA 420.1 Rev. 1978
	EPA 9065
Silica, Dissolved	EPA 200.7 Rev. 4.4
	SM 18-19 4500-Si D
Specific Conductance	SM 18-21 2510B (97)
Sulfide (as S)	EPA 9034

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Wastewater Miscellaneous

Sulfide (as S)	SM 19-21 4500-S F (00)
Surfactant (MBAS)	SM 18-21 5540C (00)
Turbidity	EPA 180.1 Rev. 2.0

Sample Preparation Methods

EPA 3005A
EPA 3010A
EPA 3510C
EPA 3520C
EPA 5030B
SM 18-20 4500-CN C
SM 18-21 4500-NH3 B (97)

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All approved analytes are listed below:

Drinking Water Bacteriology

Coliform, Total / E. coli (Qualitative)	SM 18-21 9223B (97) (Colilert)
Standard Plate Count	SM 18-21 9215B

Drinking Water Metals I

Arsenic, Total	EPA 200.8 Rev. 5.4
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
Lead, Total	EPA 200.8 Rev. 5.4
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Mercury, Total	EPA 245.1 Rev. 3.0
Selenium, Total	EPA 200.8 Rev. 5.4
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

Drinking Water Metals II

Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

Drinking Water Metals II

Antimony, Total	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Thallium, Total	EPA 200.8 Rev. 5.4

Drinking Water Metals III

Calcium, Total	EPA 200.7 Rev. 4.4
Magnesium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4

Drinking Water Miscellaneous

Odor	SM 18-20 2150B (97)
Organic Carbon, Total	SM 18-21 5310B (00)
Perchlorate	EPA 314.0
Surfactant (MBAS)	SM 18-21 5540C (00)
Turbidity	EPA 180.1 Rev. 2.0

Drinking Water Non-Metals

Alkalinity	SM 18-21 2320B (97)
Calcium Hardness	EPA 200.7 Rev. 4.4
Chloride	EPA 300.0 Rev. 2.1
Color	SM 18-21 2120B (01)
Cyanide	EPA 335.4 Rev. 1.0
Fluoride, Total	EPA 300.0 Rev. 2.1
Nitrate (as N)	EPA 353.2 Rev. 2.0

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MS. NANCY COLE
ACCUTEST LABORATORIES
2235 ROUTE 130-BLDG B
DAYTON, NJ 08810

NY Lab Id No: 10983

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Drinking Water Non-Metals	
Nitrite (as N)	SM 18-21 4500-NO2 B (00)
Orthophosphate (as P)	SM 18-21 4500-P E
Silica, Dissolved	EPA 200.7 Rev. 4.4
	SM 18-19 4500-Si D
Solids, Total Dissolved	SM 18-21 2540C (97)
Specific Conductance	SM 18-21 2510B (97)
Sulfate (as SO4)	EPA 300.0 Rev. 2.1
Drinking Water Trihalomethanes	
Bromodichloromethane	EPA 524.2
Bromoform	EPA 524.2
Chloroform	EPA 524.2
Dibromochloromethane	EPA 524.2
Fuel Additives	
Methyl tert-butyl ether	EPA 524.2
Naphthalene	EPA 524.2
Microextractibles	
1,2-Dibromo-3-chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Volatile Aromatics	
1,2,3-Trichlorobenzene	EPA 524.2
1,2,4-Trichlorobenzene	EPA 524.2
1,2,4-Trimethylbenzene	EPA 524.2
1,2-Dichlorobenzene	EPA 524.2
1,3,5-Trimethylbenzene	EPA 524.2

Volatile Aromatics	
1,3-Dichlorobenzene	EPA 524.2
1,4-Dichlorobenzene	EPA 524.2
2-Chlorotoluene	EPA 524.2
4-Chlorotoluene	EPA 524.2
Benzene	EPA 524.2
Bromobenzene	EPA 524.2
Chlorobenzene	EPA 524.2
Ethyl benzene	EPA 524.2
Hexachlorobutadiene	EPA 524.2
Isopropylbenzene	EPA 524.2
n-Butylbenzene	EPA 524.2
n-Propylbenzene	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 524.2
sec-Butylbenzene	EPA 524.2
Styrene	EPA 524.2
tert-Butylbenzene	EPA 524.2
Toluene	EPA 524.2
Total Xylenes	EPA 524.2
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 524.2
1,1,1-Trichloroethane	EPA 524.2
1,1,2,2-Tetrachloroethane	EPA 524.2
1,1,2-Trichloroethane	EPA 524.2
1,1-Dichloroethane	EPA 524.2
1,1-Dichloroethene	EPA 524.2

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Volatile Halocarbons

1,1-Dichloropropene	EPA 524.2
1,2,3-Trichloropropane	EPA 524.2
1,2-Dichloroethane	EPA 524.2
1,2-Dichloropropane	EPA 524.2
1,3-Dichloropropane	EPA 524.2
2,2-Dichloropropane	EPA 524.2
Bromochloromethane	EPA 524.2
Bromomethane	EPA 524.2
Carbon tetrachloride	EPA 524.2
Chloroethane	EPA 524.2
Chloromethane	EPA 524.2
cis-1,2-Dichloroethene	EPA 524.2
cis-1,3-Dichloropropene	EPA 524.2
Dibromomethane	EPA 524.2
Dichlorodifluoromethane	EPA 524.2
Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 524.2
trans-1,2-Dichloroethene	EPA 524.2
trans-1,3-Dichloropropene	EPA 524.2
Trichloroethene	EPA 524.2
Trichlorofluoromethane	EPA 524.2
Vinyl chloride	EPA 524.2

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Acrylates	
Acrolein (Propenal)	EPA 8260B
Acrylonitrile	EPA 8260B
Ethyl methacrylate	EPA 8260B
Methyl acrylonitrile	EPA 8260B
Methyl methacrylate	EPA 8260B
Amines	
1,2-Diphenylhydrazine	EPA 8270C
	EPA 8270D
1-Naphthylamine	EPA 8270C
	EPA 8270D
2-Naphthylamine	EPA 8270C
	EPA 8270D
2-Nitroaniline	EPA 8270C
	EPA 8270D
3-Nitroaniline	EPA 8270C
	EPA 8270D
4-Chloroaniline	EPA 8270C
	EPA 8270D
4-Nitroaniline	EPA 8270C
	EPA 8270D
5-Nitro-o-toluidine	EPA 8270C
	EPA 8270D
Aniline	EPA 8270C
	EPA 8270D
Carbazole	EPA 8270C

Amines	
Carbazole	EPA 8270D
Diphenylamine	EPA 8270C
	EPA 8270D
Pronamide	EPA 8270C
	EPA 8270D
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270C
	EPA 8270D
Benzidine	EPA 8270C
	EPA 8270D
Characteristic Testing	
TCLP	EPA 1311
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081A
	EPA 8081B
4,4'-DDE	EPA 8081A
	EPA 8081B
4,4'-DDT	EPA 8081A
	EPA 8081B
Aldrin	EPA 8081A
	EPA 8081B
alpha-BHC	EPA 8081A
	EPA 8081B
alpha-Chlordane	EPA 8081A

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Chlorinated Hydrocarbon Pesticides	
alpha-Chlordane	EPA 8081B
Atrazine	EPA 8270C
	EPA 8270D
beta-BHC	EPA 8081A
	EPA 8081B
Chlordane Total	EPA 8081A
	EPA 8081B
Chlorobenzilate	EPA 8270C
	EPA 8270D
delta-BHC	EPA 8081A
	EPA 8081B
Diallate	EPA 8270C
	EPA 8270D
Dieldrin	EPA 8081A
	EPA 8081B
Endosulfan I	EPA 8081A
	EPA 8081B
Endosulfan II	EPA 8081A
	EPA 8081B
Endosulfan sulfate	EPA 8081A
	EPA 8081B
Endrin	EPA 8081A
	EPA 8081B
Endrin aldehyde	EPA 8081A
	EPA 8081B
Endrin Ketone	EPA 8081A

Chlorinated Hydrocarbon Pesticides	
Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081A
	EPA 8081B
Heptachlor	EPA 8081A
	EPA 8081B
Heptachlor epoxide	EPA 8081A
	EPA 8081B
Isodrin	EPA 8270C
	EPA 8270D
Kepone	EPA 8270C
	EPA 8270D
Lindane	EPA 8081A
	EPA 8081B
Methoxychlor	EPA 8081A
	EPA 8081B
Pentachloronitrobenzene	EPA 8270C
	EPA 8270D
Toxaphene	EPA 8081A
	EPA 8081B
Chlorinated Hydrocarbons	
1,2,4,5-Tetrachlorobenzene	EPA 8270C
	EPA 8270D
1,2,4-Trichlorobenzene	EPA 8270C
	EPA 8270D
2-Chloronaphthalene	EPA 8270C

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Chlorinated Hydrocarbons

2-Chloronaphthalene	EPA 8270D
Hexachlorobenzene	EPA 8270C
	EPA 8270D
Hexachlorobutadiene	EPA 8270C
	EPA 8270D
Hexachlorocyclopentadiene	EPA 8270C
	EPA 8270D
Hexachloroethane	EPA 8270C
	EPA 8270D
Hexachloropropene	EPA 8270C
	EPA 8270D
Pentachlorobenzene	EPA 8270C
	EPA 8270D

Chlorophenoxy Acid Pesticides

2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
2,4-DB	EPA 8151A
Dalapon	EPA 8151A
Dicamba	EPA 8151A
Dichloroprop	EPA 8151A
Dinoseb	EPA 8151A
MCPA	EPA 8151A
MCPP	EPA 8151A
Pentachlorophenol	EPA 8151A

Haloethers

4-Bromophenylphenyl ether	EPA 8270C
	EPA 8270D
4-Chlorophenylphenyl ether	EPA 8270C
	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 8270C
	EPA 8270D
Bis(2-chloroethyl)ether	EPA 8270C
	EPA 8270D
Bis(2-chloroisopropyl) ether	EPA 8270C
	EPA 8270D

Low Level Polynuclear Aromatic Hydrocarbons

Acenaphthene Low Level	EPA 8310
Acenaphthylene Low Level	EPA 8310
Anthracene Low Level	EPA 8310
Benzo(a)anthracene Low Level	EPA 8270C SIM
	EPA 8270D SIM
	EPA 8310
Benzo(a)pyrene Low Level	EPA 8270C SIM
	EPA 8270D SIM
	EPA 8310
Benzo(b)fluoranthene Low Level	EPA 8270C SIM
	EPA 8270D SIM
	EPA 8310
Benzo(g,h,i)perylene Low Level	EPA 8310
Benzo(k)fluoranthene Low Level	EPA 8270C SIM

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Low Level Polynuclear Aromatic Hydrocarbons

Benzo(k)fluoranthene Low Level	EPA 8270D SIM
	EPA 8310
Chrysene Low Level	EPA 8310
Dibenzo(a,h)anthracene Low Level	EPA 8270C SIM
	EPA 8270D SIM
	EPA 8310
Fluoranthene Low Level	EPA 8310
Fluorene Low Level	EPA 8310
Indeno(1,2,3-cd)pyrene Low Level	EPA 8270C SIM
	EPA 8270D SIM
	EPA 8310
Naphthalene Low Level	EPA 8310
Phenanthrene Low Level	EPA 8310
Pyrene Low Level	EPA 8310

Metals I

Barium, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Cadmium, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Calcium, Total	EPA 6010B
	EPA 6010C

Metals I

Chromium, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Copper, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Iron, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Lead, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Magnesium, Total	EPA 6010B
	EPA 6010C
Manganese, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Nickel, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A

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Metals I		**Metals II**	
Potassium, Total	EPA 6010B	Beryllium, Total	EPA 6020
	EPA 6010C		EPA 6020A
Silver, Total	EPA 6010B	Chromium VI	EPA 7196A
	EPA 6010C		EPA 7199
	EPA 6020	Mercury, Total	EPA 7471A
	EPA 6020A		EPA 7471B
Sodium, Total	EPA 6010B	Selenium, Total	EPA 6010B
	EPA 6010C		EPA 6010C
Strontium, Total	EPA 6010B		EPA 6020
	EPA 6010C		EPA 6020A
Metals II		Vanadium, Total	EPA 6010B
Aluminum, Total	EPA 6010B		EPA 6010C
	EPA 6010C		EPA 6020
	EPA 6020		EPA 6020A
	EPA 6020A	Zinc, Total	EPA 6010B
Antimony, Total	EPA 6010B		EPA 6010C
	EPA 6010C		EPA 6020
	EPA 6020		EPA 6020A
	EPA 6020A	**Metals III**	
Arsenic, Total	EPA 6010B	Cobalt, Total	EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020		EPA 6020
	EPA 6020A		EPA 6020A
Beryllium, Total	EPA 6010B	Molybdenum, Total	EPA 6010B
	EPA 6010C		EPA 6010C

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Metals III	
Molybdenum, Total	EPA 6020
	EPA 6020A
Thallium, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Tin, Total	EPA 6010B
	EPA 6010C
Titanium, Total	EPA 6010B
	EPA 6010C
Minerals	
Bromide	EPA 9056A
Chloride	EPA 9056A
Fluoride, Total	EPA 9056A
Sulfate (as SO4)	EPA 9056A
Miscellaneous	
Boron, Total	EPA 6010B
	EPA 6010C
Cyanide, Total	EPA 9012B
Extractable Organic Halides	EPA 9023
Organic Carbon, Total	EPA 9060A
	Lloyd Kahn Method
Phenols	EPA 9065
Sulfide (as S)	EPA 9034

Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270C
	EPA 8270D
1,4-Naphthoquinone	EPA 8270C
	EPA 8270D
2,4-Dinitrotoluene	EPA 8270C
	EPA 8270D
2,6-Dinitrotoluene	EPA 8270C
	EPA 8270D
Hydroquinone	EPA 8270C
	EPA 8270D
Isophorone	EPA 8270C
	EPA 8270D
Nitrobenzene	EPA 8270C
	EPA 8270D
Nitroquinoline-1-oxide	EPA 8270C
	EPA 8270D
Pyridine	EPA 8270C
	EPA 8270D
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270C
	EPA 8270D
N-Nitrosodimethylamine	EPA 8270C
	EPA 8270D
N-Nitrosodi-n-butylamine	EPA 8270C
	EPA 8270D

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Nitrosoamines	
N-Nitrosodi-n-propylamine	EPA 8270C
	EPA 8270D
N-Nitrosodiphenylamine	EPA 8270C
	EPA 8270D
N-nitrosomethylethylamine	EPA 8270C
	EPA 8270D
N-nitrosomorpholine	EPA 8270C
	EPA 8270D
N-nitrosopiperidine	EPA 8270C
	EPA 8270D
N-Nitrosopyrrolidine	EPA 8270C
	EPA 8270D
Organophosphate Pesticides	
Dimethoate	EPA 8270C
	EPA 8270D
Disulfoton	EPA 8270C
	EPA 8270D
Parathion ethyl	EPA 8270D
Parathion methyl	EPA 8270C
	EPA 8270D
Phorate	EPA 8270C
	EPA 8270D
Thionazin	EPA 8270C
	EPA 8270D
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015B
	EPA 8015C
Gasoline Range Organics	EPA 8015B
	EPA 8015C
Oil and Grease Total Recoverable (HEM	EPA 9071 (Solvent:Hexane)
Phthalate Esters	
Benzyl butyl phthalate	EPA 8270C
	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 8270C
	EPA 8270D
Diethyl phthalate	EPA 8270C
	EPA 8270D
Dimethyl phthalate	EPA 8270C
	EPA 8270D
Di-n-butyl phthalate	EPA 8270C
	EPA 8270D
Di-n-octyl phthalate	EPA 8270C
	EPA 8270D
Polychlorinated Biphenyls	
PCB-1016	EPA 8082
	EPA 8082A
PCB-1221	EPA 8082
	EPA 8082A
PCB-1232	EPA 8082
	EPA 8082A

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is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Polychlorinated Biphenyls	
PCB-1242	EPA 8082
	EPA 8082A
PCB-1248	EPA 8082
	EPA 8082A
PCB-1254	EPA 8082
	EPA 8082A
PCB-1260	EPA 8082
	EPA 8082A
PCB-1262	EPA 8082A
PCB-1268	EPA 8082A
Polynuclear Aromatic Hydrocarbons	
2-Acetylaminofluorene	EPA 8270C
	EPA 8270D
3-Methylcholanthrene	EPA 8270C
	EPA 8270D
7,12-Dimethylbenzyl (a) anthracene	EPA 8270C
	EPA 8270D
Acenaphthene	EPA 8100
	EPA 8270C
	EPA 8270D
Acenaphthylene	EPA 8100
	EPA 8270C
	EPA 8270D
Anthracene	EPA 8100
	EPA 8270C

Polynuclear Aromatic Hydrocarbons	
Anthracene	EPA 8270D
Benzo(a)anthracene	EPA 8100
	EPA 8270C
	EPA 8270D
Benzo(a)pyrene	EPA 8100
	EPA 8270C
	EPA 8270D
Benzo(b)fluoranthene	EPA 8100
	EPA 8270C
	EPA 8270D
Benzo(ghi)perylene	EPA 8100
	EPA 8270C
	EPA 8270D
Benzo(k)fluoranthene	EPA 8100
	EPA 8270C
	EPA 8270D
Chrysene	EPA 8100
	EPA 8270C
	EPA 8270D
Dibenzo(a,h)anthracene	EPA 8100
	EPA 8270C
	EPA 8270D
Fluoranthene	EPA 8100
	EPA 8270C
	EPA 8270D
Fluorene	EPA 8100

Serial No.: 48497

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MS. NANCY COLE
ACCUTEST LABORATORIES
2235 ROUTE 130-BLDG B
DAYTON, NJ 08810

NY Lab Id No: 10983

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Polynuclear Aromatic Hydrocarbons	
Fluorene	EPA 8270C
	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 8100
	EPA 8270C
	EPA 8270D
Naphthalene	EPA 8100
	EPA 8270C
	EPA 8270D
Phenanthrene	EPA 8100
	EPA 8270C
	EPA 8270D
Pyrene	EPA 8100
	EPA 8270C
	EPA 8270D
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270C
	EPA 8270D
2,4,5-Trichlorophenol	EPA 8270C
	EPA 8270D
2,4,6-Trichlorophenol	EPA 8270C
	EPA 8270D
2,4-Dichlorophenol	EPA 8270C
	EPA 8270D
2,4-Dimethylphenol	EPA 8270C
	EPA 8270D
Priority Pollutant Phenols	
2,4-Dinitrophenol	EPA 8270C
	EPA 8270D
2,6-Dichlorophenol	EPA 8270C
	EPA 8270D
2-Chlorophenol	EPA 8270C
	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 8270C
	EPA 8270D
2-Methylphenol	EPA 8270C
	EPA 8270D
2-Nitrophenol	EPA 8270C
	EPA 8270D
3-Methylphenol	EPA 8270C
	EPA 8270D
4-Chloro-3-methylphenol	EPA 8270C
	EPA 8270D
4-Methylphenol	EPA 8270C
	EPA 8270D
4-Nitrophenol	EPA 8270C
	EPA 8270D
Pentachlorophenol	EPA 8270C
	EPA 8270D
Phenol	EPA 8270C
	EPA 8270D

STATE OF NEW YORK
DEPARTMENT OF HEALTH

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All approved analytes are listed below:

Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270C
	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
2-Methyinaphthalene	EPA 8270C
	EPA 8270D
2-Picoline	EPA 8270C
	EPA 8270D
4-Amino biphenyl	EPA 8270C
	EPA 8270D
Acetophenone	EPA 8270C
	EPA 8270D
Benzoic Acid	EPA 8270C
	EPA 8270D
Benzyl alcohol	EPA 8270C
	EPA 8270D
Caprolactam	EPA 8270C
	EPA 8270D
Dibenzofuran	EPA 8270C
	EPA 8270D
Ethyl methanesulfonate	EPA 8270C
	EPA 8270D

Semi-Volatile Organics	
Isosafrole	EPA 8270C
	EPA 8270D
Methyl methanesulfonate	EPA 8270C
	EPA 8270D
O,O,O-Triethyl phosphorothioate	EPA 8270C
	EPA 8270D
Phenacetin	EPA 8270C
	EPA 8270D
Safrole	EPA 8270C
	EPA 8270D
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260B
1,2,4-Trimethylbenzene	EPA 8260B
1,2-Dichlorobenzene	EPA 8021B
	EPA 8260B
1,3,5-Trimethylbenzene	EPA 8260B
1,3-Dichlorobenzene	EPA 8021B
	EPA 8260B
1,4-Dichlorobenzene	EPA 8021B
	EPA 8260B
2-Chlorotoluene	EPA 8260B
4-Chlorotoluene	EPA 8260B
Benzene	EPA 8021B
	EPA 8260B
Bromobenzene	EPA 8260B

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Volatile Aromatics	
Chlorobenzene	EPA 8021B
	EPA 8260B
Ethyl benzene	EPA 8021B
	EPA 8260B
Isopropylbenzene	EPA 8260B
Naphthalene, Volatile	EPA 8260B
n-Butylbenzene	EPA 8260B
n-Propylbenzene	EPA 8260B
p-Isopropyltoluene (P-Cymene)	EPA 8260B
sec-Butylbenzene	EPA 8260B
Styrene	EPA 8021B
	EPA 8260B
tert-Butylbenzene	EPA 8260B
Toluene	EPA 8021B
	EPA 8260B
Total Xylenes	EPA 8021B
	EPA 8260B

Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260B
1,1,1-Trichloroethane	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 8260B
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
1,1,2-Trichloroethane	EPA 8260B
1,1-Dichloroethane	EPA 8260B
1,1-Dichloroethene	EPA 8260B

Volatile Halocarbons	
1,1-Dichloropropene	EPA 8260B
1,2,3-Trichloropropane	EPA 8260B
1,2-Dibromo-3-chloropropane	EPA 8260B
1,2-Dibromoethane	EPA 8260B
1,2-Dichloroethane	EPA 8260B
1,2-Dichloropropane	EPA 8260B
1,3-Dichloropropane	EPA 8260B
2,2-Dichloropropane	EPA 8260B
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B
2-Chloroethylvinyl ether	EPA 8260B
3-Chloropropene (Allyl chloride)	EPA 8260B
Bromochloromethane	EPA 8260B
Bromodichloromethane	EPA 8260B
Bromoform	EPA 8260B
Bromomethane	EPA 8260B
Carbon tetrachloride	EPA 8260B
Chloroethane	EPA 8260B
Chloroform	EPA 8260B
Chloromethane	EPA 8260B
cis-1,2-Dichloroethene	EPA 8021B
	EPA 8260B
cis-1,3-Dichloropropene	EPA 8021B
	EPA 8260B
Dibromochloromethane	EPA 8260B
Dibromomethane	EPA 8260B
Dichlorodifluoromethane	EPA 8260B

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Volatile Halocarbons	
Hexachlorobutadiene, Volatile	EPA 8260B
Methyl iodide	EPA 8260B
Methylene chloride	EPA 8260B
Tetrachloroethene	EPA 8021B
	EPA 8260B
trans-1,2-Dichloroethene	EPA 8021B
	EPA 8260B
trans-1,3-Dichloropropene	EPA 8021B
	EPA 8260B
trans-1,4-Dichloro-2-butene	EPA 8260B
Trichloroethene	EPA 8021B
	EPA 8260B
Trichlorofluoromethane	EPA 8260B
Vinyl chloride	EPA 8260B
Volatile Organics	
2-Butanone (Methylethyl ketone)	EPA 8260B
2-Hexanone	EPA 8260B
4-Methyl-2-Pentanone	EPA 8260B
Acetone	EPA 8260B
Acetonitrile	EPA 8260B
Carbon Disulfide	EPA 8260B
Cyclohexane	EPA 8260B
Ethyl Acetate	EPA 8260B
Isobutyl alcohol	EPA 8015B
	EPA 8260B

Volatile Organics	
Methyl acetate	EPA 8260B
Methyl cyclohexane	EPA 8260B
Methyl tert-butyl ether	EPA 8021B
	EPA 8260B
o-Toluidine	EPA 8270C
Propionitrile	EPA 8260B
tert-butyl alcohol	EPA 8260B
Vinyl acetate	EPA 8260B
Sample Preparation Methods	
	EPA 3050B
	EPA 3060A
	EPA 3540C
	EPA 3545
	EPA 3546
	EPA 3550B
	EPA 5035A-H
	EPA 5035A-L
	EPA 9010C

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The Commonwealth of Massachusetts

Department of Environmental Protection

Division of Environmental Analysis
Senator William X. Wall Experiment Station

certifies

M-MA136

ACCUTEST LABORATORIES OF NEW ENGLAND
495 TECHNOLOGY CTR W
50 D'ANGELO DR
MARLBOROUGH, MA 01752-0000

Laboratory Director: **Reza Tand**

for the analysis of **POTABLE WATER (CHEMISTRY)**
NON POTABLE WATER (CHEMISTRY)

pursuant to 310 CMR 42.00

This certificate supersedes all previous Massachusetts certificates issued to this laboratory. The laboratory is regulated by and shall be responsible for being in compliance with Massachusetts regulations at 310 CMR 42.00.

This certificate is valid only when accompanied by the latest dated Certified Parameter List as issued by the Massachusetts D.E.P. Contact the Division of Environmental Analysis to verify the current certification status of the laboratory.

Certification is no guarantee of the validity of the data. This certification is subject to unannounced laboratory inspections.

Issued: **01 JUL 2012**

Expires: **30 JUN 2013**

Director, Division of Environmental Analysis

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 29 APR 2013

M-MA136 **ACCUTEST LABORATORIES OF NEW ENGLAND**
MARLBOROUGH MA

NON POTABLE WATER (CHEMISTRY) **Effective Date** **29 APR 2013** **Expiration Date** **30 JUN 2013**

Analytes	Methods
ALUMINUM	EPA 200.7
ALUMINUM	EPA 200.8
ANTIMONY	EPA 200.7
ANTIMONY	EPA 200.8
ARSENIC	EPA 200.7
ARSENIC	EPA 200.8
BERYLLIUM	EPA 200.7
BERYLLIUM	EPA 200.8
CADMIUM	EPA 200.7
CADMIUM	EPA 200.8
CHROMIUM	EPA 200.7
CHROMIUM	EPA 200.8
COBALT	EPA 200.7
COBALT	EPA 200.8
COPPER	EPA 200.7
COPPER	EPA 200.8
IRON	EPA 200.7
IRON	EPA 200.8
LEAD	EPA 200.7
LEAD	EPA 200.8
MANGANESE	EPA 200.7
MANGANESE	EPA 200.8
MERCURY	EPA 245.1
MOLYBDENUM	EPA 200.7
MOLYBDENUM	EPA 200.8
NICKEL	EPA 200.7
NICKEL	EPA 200.8
SELENIUM	EPA 200.7
SELENIUM	EPA 200.8
SILVER	EPA 200.7
SILVER	EPA 200.8
STRONTIUM	EPA 200.7
THALLIUM	EPA 200.7
THALLIUM	EPA 200.8
TITANIUM	EPA 200.8
VANADIUM	EPA 200.7
VANADIUM	EPA 200.8
ZINC	EPA 200.7
ZINC	EPA 200.8
PH	SM 4500-H-B
SPECIFIC CONDUCTIVITY	EPA 120.1
TOTAL DISSOLVED SOLIDS	SM 2540C
HARDNESS (CACO3), TOTAL	SM 2340B

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 29 APR 2013

M-MA136 ACCUTEST LABORATORIES OF NEW ENGLAND
MARLBOROUGH MA

NON POTABLE WATER (CHEMISTRY) Effective Date 29 APR 2013 Expiration Date 30 JUN 2013

Analytes	Methods
HARDNESS (CACO3), TOTAL	SM 2340C
CALCIUM	EPA 200.7
CALCIUM	EPA 200.8
MAGNESIUM	EPA 200.7
MAGNESIUM	EPA 200.8
SODIUM	EPA 200.7
SODIUM	EPA 200.8
POTASSIUM	EPA 200.7
POTASSIUM	EPA 200.8
ALKALINITY, TOTAL	SM 2320B
CHLORIDE	SM 4500-CL-C
FLUORIDE	SM 4500-F-B,C
SULFATE	ASTM D516
AMMONIA-N	SM18-B,C-NES
NITRATE-N	EPA 353.2
KJELDAHL-N	EPA 351.2
ORTHOPHOSPHATE	EPA 365.3
ORTHOPHOSPHATE	SM 4500-P-E
PHOSPHORUS, TOTAL	EPA 365.4
CHEMICAL OXYGEN DEMAND	SM 5220C
BIOCHEMICAL OXYGEN DEMAND	SM 5210B
TOTAL ORGANIC CARBON	SM 5310B
CYANIDE, TOTAL	EPA 335.4
NON-FILTERABLE RESIDUE	SM 2540D
CHLORINE, TOTAL RESIDUAL	SM 4500-CL-F
OIL AND GREASE	EPA 1664
PHENOLICS, TOTAL	EPA 420.1
VOLATILE HALOCARBONS	EPA 624
VOLATILE AROMATICS	EPA 602
VOLATILE AROMATICS	EPA 624
CHLORDANE	EPA 608
TOXAPHENE	EPA 608
ALDRIN	EPA 608
ALPHA-BHC	EPA 608
BETA-BHC	EPA 608
GAMMA-BHC	EPA 608
DELTA-BHC	EPA 608
DIELDRIN	EPA 608
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
ENDOSULFAN I	EPA 608
ENDOSULFAN II	EPA 608

Certified Parameter List as of: 29 APR 2013

M-MA136 ACCUTEST LABORATORIES OF NEW ENGLAND
MARLBOROUGH MA

NON POTABLE WATER (CHEMISTRY) **Effective Date** **29 APR 2013** **Expiration Date** **30 JUN 2013**

Analytes	Methods
ENDOSULFAN SULFATE	EPA 608
ENDRIN	EPA 608
ENDRIN ALDEHYDE	EPA 608
HEPTACHLOR	EPA 608
HEPTACHLOR EPOXIDE	EPA 608
SVOC-ACID EXTRACTABLES	EPA 625
SVOC-BASE/NEUTRAL EXTRACTABLES	EPA 625
POLYCHLORINATED BIPHENYLS (WATEF	EPA 608
POLYCHLORINATED BIPHENYLS (OIL)	EPA 600/4-81-045

POTABLE WATER (CHEMISTRY) **Effective Date** **29 APR 2013** **Expiration Date** **30 JUN 2013**

Analytes	Methods
ANTIMONY	EPA 200.8
ARSENIC	EPA 200.8
BARIUM	EPA 200.7
BARIUM	EPA 200.8
BERYLLIUM	EPA 200.7
BERYLLIUM	EPA 200.8
CADMIUM	EPA 200.7
CADMIUM	EPA 200.8
CHROMIUM	EPA 200.7
CHROMIUM	EPA 200.8
COPPER	EPA 200.7
COPPER	EPA 200.8
LEAD	EPA 200.8
MERCURY	EPA 245.1
NICKEL	EPA 200.7
NICKEL	EPA 200.8
SELENIUM	EPA 200.8
SILVER	EPA 200.7
SILVER	EPA 200.8
THALLIUM	EPA 200.8
NITRATE-N	EPA 353.2
NITRITE-N	EPA 353.2
FLUORIDE	SM 4500-F-C
SODIUM	EPA 200.7
SULFATE	SM 4500-SO4-C
CYANIDE, TOTAL	EPA 335.4
TURBIDITY	EPA 180.1
CHLORINE, RESIDUAL FREE	SM 4500-CL-F
CALCIUM	EPA 200.7
ALKALINITY, TOTAL	SM 2320B

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 29 APR 2013

M-MA136 ACCUTEST LABORATORIES OF NEW ENGLAND
MARLBOROUGH MA

POTABLE WATER (CHEMISTRY) **Effective Date** **29 APR 2013** **Expiration Date** **30 JUN 2013**

Analytes	Methods
TOTAL DISSOLVED SOLIDS	SM 2540C
PH	EPA 150.1
PH	SM 4500-H-B
TRIHALOMETHANES	EPA 524.2
VOLATILE ORGANIC COMPOUNDS	EPA 524.2
1,2-DIBROMOETHANE	EPA 504.1
1,2-DIBROMO-3-CHLOROPROPANE	EPA 504.1

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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MR. MOHAMMAD REZA TAND
ACCUTEST LABORATORIES OF NEW ENGLAND, INC
50 DANGELO STREET-BLDG ONE 495 TECHNOLOGY CENTER WEST
MARLBOROUGH, MA 01752

NY Lab Id No: 11791

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved analytes are listed below:

Chlorinated Hydrocarbons	
1,2,4-Trichlorobenzene	EPA TO-15
Hexachlorobutadiene	EPA TO-15
Purgeable Aromatics	
1,2-Dichlorobenzene	EPA TO-15
1,3-Dichlorobenzene	EPA TO-15
1,4-Dichlorobenzene	EPA TO-15
Benzene	EPA TO-15
Chlorobenzene	EPA TO-15
Ethyl benzene	EPA TO-15
Isopropylbenzene	EPA TO-15
m/p-Xylenes	EPA TO-15
o-Xylene	EPA TO-15
Styrene	EPA TO-15
Toluene	EPA TO-15
Total Xylenes	EPA TO-15
Purgeable Halocarbons	
1,1,1-Trichloroethane	EPA TO-15
1,1,2,2-Tetrachloroethane	EPA TO-15
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA TO-15
1,1,2-Trichloroethane	EPA TO-15
1,1-Dichloroethane	EPA TO-15
1,1-Dichloroethene	EPA TO-15
1,2-Dibromoethane	EPA TO-15
1,2-Dichloroethane	EPA TO-15
1,2-Dichloropropane	EPA TO-15

Purgeable Halocarbons	
Bromoform	EPA TO-15
Bromomethane	EPA TO-15
Carbon tetrachloride	EPA TO-15
Chloroethane	EPA TO-15
Chloroform	EPA TO-15
Chloromethane	EPA TO-15
cis-1,2-Dichloroethene	EPA TO-15
cis-1,3-Dichloropropene	EPA TO-15
Methylene chloride	EPA TO-15
Tetrachloroethene	EPA TO-15
trans-1,2-Dichloroethene	EPA TO-15
trans-1,3-Dichloropropene	EPA TO-15
Trichloroethene	EPA TO-15
Vinyl chloride	EPA TO-15
Volatile Chlorinated Organics	
Benzyl chloride	EPA TO-15
Volatile Organics	
1,3-Butadiene	EPA TO-15
1,4-Dioxane	EPA TO-15
2,2,4-Trimethylpentane	EPA TO-15
2-Butanone (Methylethyl ketone)	EPA TO-15
4-Methyl-2-Pentanone	EPA TO-15
Carbon Disulfide	EPA TO-15
Cyclohexane	EPA TO-15
Hexane	EPA TO-15

Serial No.: 48868

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NY Lab Id No: 11791

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All approved analytes are listed below:

Volatile Organics

Isopropanol	EPA TO-15
Methyl tert-butyl ether	EPA TO-15
n-Heptane	EPA TO-15
Vinyl acetate	EPA TO-15

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Serial No.: 48868

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MARLBOROUGH, MA 01752

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is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 624
	EPA 8260B
Acrylonitrile	EPA 624
	EPA 8260B
Ethyl methacrylate	EPA 8260B
Methyl acrylonitrile	EPA 8260B
Amines	
1,4-Phenylenediamine	EPA 8270C
1-Naphthylamine	EPA 8270C
2-Naphthylamine	EPA 8270C
2-Nitroaniline	EPA 8270C
3-Nitroaniline	EPA 8270C
4-Chloroaniline	EPA 8270C
4-Nitroaniline	EPA 8270C
5-Nitro-o-toluidine	EPA 8270C
Aniline	EPA 8270C
Carbazole	EPA 8270C
Diphenylamine	EPA 8270C
Methapyrilene	EPA 8270C
Pronamide	EPA 8270C
Propionitrile	EPA 8260B
Pyridine	EPA 8270C
Benzidines	
3,3'-Dichlorobenzidine	EPA 625
	EPA 8270C

Benzidines	
3,3'-Dimethylbenzidine	EPA 8270C
Benzidine	EPA 625
	EPA 8270C
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 608
	EPA 8081A
4,4'-DDE	EPA 608
	EPA 8081A
4,4'-DDT	EPA 608
	EPA 8081A
Aldrin	EPA 608
	EPA 8081A
alpha-BHC	EPA 608
	EPA 8081A
alpha-Chlordane	EPA 8081A
beta-BHC	EPA 608
	EPA 8081A
Chlordane Total	EPA 608
	EPA 8081A
Chlorobenzilate	EPA 8081A
	EPA 8270C
delta-BHC	EPA 608
	EPA 8081A
Diallate	EPA 8270C
Dieldrin	EPA 608

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. MOHAMMAD REZA TAND
ACCUTEST LABORATORIES OF NEW ENGLAND, INC
50 DANGELO STREET-BLDG ONE 495 TECHNOLOGY CENTER WEST
MARLBOROUGH, MA 01752

NY Lab Id No: 11791

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides

Dieldrin	EPA 8081A
Endosulfan I	EPA 608
	EPA 8081A
Endosulfan II	EPA 608
	EPA 8081A
Endosulfan sulfate	EPA 608
	EPA 8081A
Endrin	EPA 608
	EPA 8081A
Endrin aldehyde	EPA 608
	EPA 8081A
Endrin Ketone	EPA 8081A
gamma-Chlordane	EPA 8081A
Heptachlor	EPA 608
	EPA 8081A
Heptachlor epoxide	EPA 608
	EPA 8081A
Kepone	EPA 8270C
Lindane	EPA 608
	EPA 8081A
Methoxychlor	EPA 8081A
Toxaphene	EPA 608
	EPA 8081A

Chlorinated Hydrocarbons

1,2,3-Trichlorobenzene	EPA 8260B

Chlorinated Hydrocarbons

1,2,4,5-Tetrachlorobenzene	EPA 8270C
1,2,4-Trichlorobenzene	EPA 625
	EPA 8270C
2-Chloronaphthalene	EPA 625
	EPA 8270C
Hexachlorobenzene	EPA 625
	EPA 8270C
Hexachlorobutadiene	EPA 625
	EPA 8270C
Hexachlorocyclopentadiene	EPA 625
	EPA 8270C
Hexachloroethane	EPA 625
	EPA 8270C
Hexachloropropene	EPA 8270C
Pentachlorobenzene	EPA 8270C

Chlorophenoxy Acid Pesticides

2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dicamba	EPA 8151A
Dinoseb	EPA 8270C

Demand

Biochemical Oxygen Demand	SM 18-21 5210B (01)
Chemical Oxygen Demand	SM 18-21 5220C (97)

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Fuel Oxygenates	
Di-isopropyl ether	EPA 8260B
Ethanol	EPA 8015B
	EPA 8260B
Methyl tert-butyl ether	EPA 8021B
	EPA 8260B
tert-amyl methyl ether (TAME)	EPA 8260B
tert-butyl alcohol	EPA 8260B
tert-butyl ethyl ether (ETBE)	EPA 8260B
Haloethers	
4-Bromophenylphenyl ether	EPA 625
	EPA 8270C
4-Chlorophenylphenyl ether	EPA 625
	EPA 8270C
Bis(2-chloroethoxy)methane	EPA 625
	EPA 8270C
Bis(2-chloroethyl)ether	EPA 625
	EPA 8270C
Bis(2-chloroisopropyl) ether	EPA 625
	EPA 8270C
Low Level Polynuclear Aromatics	
Acenaphthene Low Level	EPA 8310
Acenaphthylene Low Level	EPA 8310
Anthracene Low Level	EPA 8310
Benzo(a)anthracene Low Level	EPA 8310
Benzo(a)pyrene Low Level	EPA 8310

Low Level Polynuclear Aromatics	
Benzo(b)fluoranthene Low Level	EPA 8310
Benzo(g,h,i)perylene Low Level	EPA 8310
Benzo(k)fluoranthene Low Level	EPA 8310
Chrysene Low Level	EPA 8310
Dibenzo(a,h)anthracene Low Level	EPA 8310
Fluoranthene Low Level	EPA 8310
Fluorene Low Level	EPA 8310
Indeno(1,2,3-cd)pyrene Low Level	EPA 8310
Naphthalene Low Level	EPA 8310
Phenanthrene Low Level	EPA 8310
Pyrene Low Level	EPA 8310
Mineral	
Acidity	SM 18-21 2310B.4a (97)
Alkalinity	SM 18-21 2320B (97)
Chloride	SM 18-20 4500-Cl- C
Fluoride, Total	SM 18-21 4500-F C (97)
Hardness, Total	SM 18-21 2340C (97)
Sulfate (as SO4)	ASTM D516-90 02 & 07
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270C
	EPA 8330
1,3-Dinitrobenzene	EPA 8270C
	EPA 8330
1,4-Naphthoquinone	EPA 8270C
2,4,6-Trinitrotoluene	EPA 8330

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All approved analytes are listed below:

Nitroaromatics and Isophorone	
2,4-Dinitrotoluene	EPA 625
	EPA 8270C
	EPA 8330
2,6-Dinitrotoluene	EPA 625
	EPA 8270C
	EPA 8330
2-Amino-4,6-dinitrotoluene	EPA 8330
2-Nitrotoluene	EPA 8330
3-Nitrotoluene	EPA 8330
4-Amino-2,6-dinitrotoluene	EPA 8330
4-Nitrotoluene	EPA 8330
Hexahydro-1,3,5-trinitro-1,3,5-triazine	EPA 8330
Isophorone	EPA 625
	EPA 8270C
Nitrobenzene	EPA 625
	EPA 8270C
	EPA 8330
Octahydro-tetranitro-tetrazocine	EPA 8330
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270C
N-Nitrosodimethylamine	EPA 625
	EPA 8270C
N-Nitrosodi-n-butylamine	EPA 8270C
N-Nitrosodi-n-propylamine	EPA 625
	EPA 8270C
Nitrosoamines	
N-Nitrosodiphenylamine	EPA 625
	EPA 8270C
N-nitrosopiperidine	EPA 8270C
N-Nitrosopyrrolidine	EPA 8270C
Nutrient	
Ammonia (as N)	EPA 350.1 Rev. 2.0
	SM 18 4500-NH3 C
Kjeldahl Nitrogen, Total	EPA 351.2 Rev. 2.0
Nitrate (as N)	EPA 353.2 Rev. 2.0
Nitrite (as N)	EPA 353.2 Rev. 2.0
Orthophosphate (as P)	EPA 365.3 Rev. 1978
	SM 18-21 4500-P E
Phosphorus, Total	EPA 365.4 Rev. 1974
Organophosphate Pesticides	
Dimethoate	EPA 8270C
Disulfoton	EPA 8270C
Parathion ethyl	EPA 8270C
Parathion methyl	EPA 8270C
Phthalate Esters	
Benzyl butyl phthalate	EPA 625
	EPA 8270C
Bis(2-ethylhexyl) phthalate	EPA 625
	EPA 8270C
Diethyl phthalate	EPA 625

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Phthalate Esters

Diethyl phthalate	EPA 8270C
Dimethyl phthalate	EPA 625
	EPA 8270C
Di-n-butyl phthalate	EPA 625
	EPA 8270C
Di-n-octyl phthalate	EPA 625
	EPA 8270C

Polychlorinated Biphenyls

PCB-1016	EPA 608
	EPA 8082
PCB-1221	EPA 608
	EPA 8082
PCB-1232	EPA 608
	EPA 8082
PCB-1242	EPA 608
	EPA 8082
PCB-1248	EPA 608
	EPA 8082
PCB-1254	EPA 608
	EPA 8082
PCB-1260	EPA 608
	EPA 8082
PCB-1262	EPA 8082
PCB-1268	EPA 8082

Polynuclear Aromatics

7,12-Dimethylbenzyl (a) anthracene	EPA 8270C
Acenaphthene	EPA 625
	EPA 8270C
Acenaphthylene	EPA 625
	EPA 8270C
Anthracene	EPA 625
	EPA 8270C
Benzo(a)anthracene	EPA 625
	EPA 8270C
Benzo(a)pyrene	EPA 625
	EPA 8270C
Benzo(b)fluoranthene	EPA 625
	EPA 8270C
Benzo(ghi)perylene	EPA 625
	EPA 8270C
Benzo(k)fluoranthene	EPA 625
	EPA 8270C
Chrysene	EPA 625
	EPA 8270C
Dibenzo(a,h)anthracene	EPA 625
	EPA 8270C
Fluoranthene	EPA 625
	EPA 8270C
Fluorene	EPA 625
	EPA 8270C
Indeno(1,2,3-cd)pyrene	EPA 625

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All approved analytes are listed below:

Polynuclear Aromatics	
Indeno(1,2,3-cd)pyrene	EPA 8270C
Naphthalene	EPA 625
	EPA 8270C
Phenanthrene	EPA 625
	EPA 8270C
Pyrene	EPA 625
	EPA 8270C
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270C
2,4,5-Trichlorophenol	EPA 8270C
2,4,6-Trichlorophenol	EPA 625
	EPA 8270C
2,4-Dichlorophenol	EPA 625
	EPA 8270C
2,4-Dimethylphenol	EPA 625
	EPA 8270C
2,4-Dinitrophenol	EPA 625
	EPA 8270C
2,6-Dichlorophenol	EPA 8270C
2-Chlorophenol	EPA 625
	EPA 8270C
2-Methyl-4,6-dinitrophenol	EPA 625
	EPA 8270C
2-Methylphenol	EPA 8270C
2-Nitrophenol	EPA 625

Priority Pollutant Phenols	
2-Nitrophenol	EPA 8270C
3-Methylphenol	EPA 8270C
4-Chloro-3-methylphenol	EPA 625
	EPA 8270C
4-Methylphenol	EPA 8270C
4-Nitrophenol	EPA 625
	EPA 8270C
Cresols, Total	EPA 8270C
Pentachlorophenol	EPA 625
	EPA 8270C
Phenol	EPA 625
	EPA 8270C
Residue	
Settleable Solids	SM 18-21 2540 F (97)
Solids, Total	SM 18-21 2540B (97)
Solids, Total Dissolved	SM 18-21 2540C (97)
Solids, Total Suspended	SM 18-21 2540D (97)
Semi-Volatile Organics	
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C
1,4-Dichlorobenzene, Semi-volatile	EPA 8270C
2-Methylnaphthalene	EPA 8270C
4-Amino biphenyl	EPA 8270C
Acetophenone	EPA 8270C
Benzoic Acid	EPA 8270C

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All approved analytes are listed below:

Semi-Volatile Organics	
Benzyl alcohol	EPA 8270C
Dibenzofuran	EPA 8270C
Ethyl methanesulfonate	EPA 8270C
Isosafrole	EPA 8270C
Methyl methanesulfonate	EPA 8270C
O,O,O-Triethyl phosphorothioate	EPA 8270C
p-Dimethylaminoazobenzene	EPA 8270C
Phenacetin	EPA 8270C
Safrole	EPA 8270C
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260B
1,2,4-Trimethylbenzene	EPA 8260B
1,2-Dichlorobenzene	EPA 602
	EPA 624
	EPA 8260B
1,3,5-Trimethylbenzene	EPA 8260B
1,3-Dichlorobenzene	EPA 602
	EPA 624
	EPA 8260B
1,4-Dichlorobenzene	EPA 602
	EPA 624
	EPA 8260B
Benzene	EPA 602
	EPA 624
	EPA 8021B

Volatile Aromatics	
Benzene	EPA 8260B
Chlorobenzene	EPA 602
	EPA 624
	EPA 8260B
Ethyl benzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Isopropylbenzene	EPA 8260B
Naphthalene, Volatile	EPA 8021B
	EPA 8260B
n-Butylbenzene	EPA 8260B
n-Propylbenzene	EPA 8260B
p-Isopropyltoluene (P-Cymene)	EPA 8260B
sec-Butylbenzene	EPA 8260B
Styrene	EPA 8260B
tert-Butylbenzene	EPA 8260B
Toluene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Total Xylenes	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B

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Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260B
1,1,1-Trichloroethane	EPA 624
	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 624
	EPA 8260B
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
1,1,2-Trichloroethane	EPA 624
	EPA 8260B
1,1-Dichloroethane	EPA 624
	EPA 8260B
1,1-Dichloroethene	EPA 624
	EPA 8260B
1,1-Dichloropropene	EPA 8260B
1,2,3-Trichloropropane	EPA 8260B
1,2-Dibromo-3-chloropropane	EPA 8011
	EPA 8260B
1,2-Dibromoethane	EPA 8011
	EPA 8260B
1,2-Dichloroethane	EPA 624
	EPA 8260B
1,2-Dichloropropane	EPA 624
	EPA 8260B
1,3-Dichloropropane	EPA 8260B
2,2-Dichloropropane	EPA 8260B
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B
2-Chloroethylvinyl ether	EPA 624

Volatile Halocarbons	
2-Chloroethylvinyl ether	EPA 8260B
3-Chloropropene (Allyl chloride)	EPA 8260B
Bromochloromethane	EPA 8260B
Bromodichloromethane	EPA 624
	EPA 8260B
Bromoform	EPA 624
	EPA 8260B
Bromomethane	EPA 624
	EPA 8260B
Carbon tetrachloride	EPA 624
	EPA 8260B
Chloroethane	EPA 624
	EPA 8260B
Chloroform	EPA 624
	EPA 8260B
Chloromethane	EPA 624
	EPA 8260B
cis-1,2-Dichloroethene	EPA 8260B
cis-1,3-Dichloropropene	EPA 624
	EPA 8260B
Dibromochloromethane	EPA 624
	EPA 8260B
Dibromomethane	EPA 8260B
Dichlorodifluoromethane	EPA 8260B
Hexachlorobutadiene, Volatile	EPA 8260B
Methyl iodide	EPA 8260B

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All approved analytes are listed below:

Volatile Halocarbons	
Methylene chloride	EPA 624
	EPA 8260B
Tetrachloroethene	EPA 624
	EPA 8260B
trans-1,2-Dichloroethene	EPA 624
	EPA 8260B
trans-1,3-Dichloropropene	EPA 624
	EPA 8260B
trans-1,4-Dichloro-2-butene	EPA 8260B
Trichloroethene	EPA 624
	EPA 8260B
Trichlorofluoromethane	EPA 624
	EPA 8260B
Vinyl chloride	EPA 624
	EPA 8260B
Volatiles Organics	
1,4-Dioxane	EPA 8260B
2-Butanone (Methylethyl ketone)	EPA 8260B
2-Hexanone	EPA 8260B
4-Methyl-2-Pentanone	EPA 8260B
Acetone	EPA 8260B
Acetonitrile	EPA 8260B
Carbon Disulfide	EPA 8260B
Cyclohexane	EPA 8260B
Ethyl Acetate	EPA 8260B

Volatiles Organics	
Isobutyl alcohol	EPA 8015B
	EPA 8260B
Methyl cyclohexane	EPA 8260B
o-Toluidine	EPA 8270C
Vinyl acetate	EPA 8260B
Wastewater Metals I	
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Calcium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Iron, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Lead, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Magnesium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Nickel, Total	EPA 200.7 Rev. 4.4

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is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Wastewater Metals I	
Nickel, Total	EPA 6010B
Potassium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Sodium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Strontium, Total	EPA 6010B
Wastewater Metals II	
Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Antimony, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Arsenic, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Chromium VI	EPA 7196A
Mercury, Total	EPA 245.1 Rev. 3.0
	EPA 7470A
Selenium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Zinc, Total	EPA 200.7 Rev. 4.4

Wastewater Metals II	
Zinc, Total	EPA 6010B
Wastewater Metals III	
Cobalt, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Molybdenum, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Thallium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Tin, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Titanium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Wastewater Miscellaneous	
Boron, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Color	SM 18-21 2120B (01)
Cyanide, Total	EPA 335.4 Rev. 1.0
	EPA 9012B
Formaldehyde	EPA 8315
Oil and Grease Total Recoverable (HEM	EPA 1664A
	EPA 9070 (Solvent:Hexane)
Organic Carbon, Total	EPA 9060
	SM 18-21 5310B (00)
Phenols	EPA 420.1 Rev. 1978
	EPA 420.4 Rev. 1.0

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. MOHAMMAD REZA TAND
ACCUTEST LABORATORIES OF NEW ENGLAND, INC
50 DANGELO STREET-BLDG ONE 495 TECHNOLOGY CENTER WEST
MARLBOROUGH, MA 01752

NY Lab Id No: 11791

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Wastewater Miscellaneous

Phenols	EPA 9065
	EPA 9066
Silica, Dissolved	SM 20-21 4500 SiO2-C (97)
Specific Conductance	EPA 120.1 Rev. 1982
	SM 18-21 2510B (97)
Sulfide (as S)	SM 19-21 4500-S F (00)
Surfactant (MBAS)	SM 18-21 5540C (00)
Total Petroleum Hydrocarbons	EPA 1664A
Turbidity	EPA 180.1 Rev. 2.0

Sample Preparation Methods

	EPA 3010A
	EPA 3510C
	EPA 5030B

STATE OF NEW YORK
DEPARTMENT OF HEALTH

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Drinking Water Metals I

Barium, Total	EPA 200.7 Rev. 4.4
Cadmium, Total	EPA 200.7 Rev. 4.4
Chromium, Total	EPA 200.7 Rev. 4.4
Copper, Total	EPA 200.7 Rev. 4.4
Iron, Total	EPA 200.7 Rev. 4.4
Manganese, Total	EPA 200.7 Rev. 4.4
Mercury, Total	EPA 245.1 Rev. 3.0
Silver, Total	EPA 200.7 Rev. 4.4
Zinc, Total	EPA 200.7 Rev. 4.4

Drinking Water Metals II

Aluminum, Total	EPA 200.7 Rev. 4.4
Beryllium, Total	EPA 200.7 Rev. 4.4
Nickel, Total	EPA 200.7 Rev. 4.4

Drinking Water Metals III

Calcium, Total	EPA 200.7 Rev. 4.4
Magnesium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4

Drinking Water Miscellaneous

Odor	SM 18-20 2150B (97)
Organic Carbon, Total	SM 18-21 5310B (00)
Turbidity	EPA 180.1 Rev. 2.0

Drinking Water Non-Metals

Alkalinity	SM 18-21 2320B (97)
Chloride	SM 18-21 4500-Cl- D (97)

Drinking Water Non-Metals

Color	SM 18-21 2120B (01)
Cyanide	EPA 335.4 Rev. 1.0
Fluoride, Total	SM 18-21 4500-F C (97)
Nitrate (as N)	EPA 353.2 Rev. 2.0
Nitrite (as N)	EPA 353.2 Rev. 2.0
Orthophosphate (as P)	SM 18-21 4500-P E
Silica, Dissolved	SM 20-21 4500 SiO2-C (97)
Solids, Total Dissolved	SM 18-21 2540C (97)
Specific Conductance	SM 18-21 2510B (97)
Sulfate (as SO4)	SM 18-21 4500 - SO4 C (97)

Drinking Water Trihalomethanes

Bromodichloromethane	EPA 524.2
Bromoform	EPA 524.2
Chloroform	EPA 524.2
Dibromochloromethane	EPA 524.2
Total Trihalomethanes	EPA 524.2

Fuel Additives

Methyl tert-butyl ether	EPA 524.2
Naphthalene	EPA 524.2

Microextractibles

1,2-Dibromo-3-chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1

Volatile Aromatics

1,2,3-Trichlorobenzene	EPA 524.2

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NY Lab Id No: 11791

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All approved analytes are listed below:

Volatile Aromatics

1,2,4-Trichlorobenzene	EPA 524.2
1,2,4-Trimethylbenzene	EPA 524.2
1,2-Dichlorobenzene	EPA 524.2
1,3,5-Trimethylbenzene	EPA 524.2
1,3-Dichlorobenzene	EPA 524.2
1,4-Dichlorobenzene	EPA 524.2
2-Chlorotoluene	EPA 524.2
4-Chlorotoluene	EPA 524.2
Benzene	EPA 524.2
Bromobenzene	EPA 524.2
Chlorobenzene	EPA 524.2
Ethyl benzene	EPA 524.2
Hexachlorobutadiene	EPA 524.2
Isopropylbenzene	EPA 524.2
n-Butylbenzene	EPA 524.2
n-Propylbenzene	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 524.2
sec-Butylbenzene	EPA 524.2
Styrene	EPA 524.2
tert-Butylbenzene	EPA 524.2
Toluene	EPA 524.2
Total Xylenes	EPA 524.2

Volatile Halocarbons

1,1,1,2-Tetrachloroethane	EPA 524.2
1,1,1-Trichloroethane	EPA 524.2

Volatile Halocarbons

1,1,2,2-Tetrachloroethane	EPA 524.2
1,1,2-Trichloroethane	EPA 524.2
1,1-Dichloroethane	EPA 524.2
1,1-Dichloroethene	EPA 524.2
1,1-Dichloropropene	EPA 524.2
1,2,3-Trichloropropane	EPA 524.2
1,2-Dichloroethane	EPA 524.2
1,2-Dichloropropane	EPA 524.2
1,3-Dichloropropane	EPA 524.2
2,2-Dichloropropane	EPA 524.2
Bromochloromethane	EPA 524.2
Bromomethane	EPA 524.2
Carbon tetrachloride	EPA 524.2
Chloroethane	EPA 524.2
Chloromethane	EPA 524.2
cis-1,2-Dichloroethene	EPA 524.2
cis-1,3-Dichloropropene	EPA 524.2
Dibromomethane	EPA 524.2
Dichlorodifluoromethane	EPA 524.2
Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 524.2
trans-1,2-Dichloroethene	EPA 524.2
trans-1,3-Dichloropropene	EPA 524.2
Trichloroethene	EPA 524.2
Trichlorofluoromethane	EPA 524.2
Vinyl chloride	EPA 524.2

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50 DANGELO STREET-BLDG ONE 495 TECHNOLOGY CENTER WEST
MARLBOROUGH, MA 01752

NY Lab Id No: 11791

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8260B
Acrylonitrile	EPA 8260B
Ethyl methacrylate	EPA 8260B
Methyl acrylonitrile	EPA 8260B
Methyl methacrylate	EPA 8260B
Amines	
1,2-Diphenylhydrazine	EPA 8270C
1,4-Phenylenediamine	EPA 8270C
1-Naphthylamine	EPA 8270C
2-Naphthylamine	EPA 8270C
2-Nitroaniline	EPA 8270C
3-Nitroaniline	EPA 8270C
4-Chloroaniline	EPA 8270C
4-Nitroaniline	EPA 8270C
5-Nitro-o-toluidine	EPA 8270C
Aniline	EPA 8270C
Carbazole	EPA 8270C
Diphenylamine	EPA 8270C
Methapyrilene	EPA 8270C
Pronamide	EPA 8270C
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270C
3,3'-Dimethylbenzidine	EPA 8270C
Benzidine	EPA 8270C

Characteristic Testing	
Corrosivity	EPA 9040C
Ignitability	EPA 1020
Reactivity	SW-846 Ch7 Sec. 7.3
Synthetic Precipitation Leaching Proc.	EPA 1312
TCLP	EPA 1311
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081A
4,4'-DDE	EPA 8081A
4,4'-DDT	EPA 8081A
Aldrin	EPA 8081A
alpha-BHC	EPA 8081A
alpha-Chlordane	EPA 8081A
beta-BHC	EPA 8081A
Chlordane Total	EPA 8081A
Chlorobenzilate	EPA 8081A
	EPA 8270C
delta-BHC	EPA 8081A
Diallate	EPA 8270C
Dieldrin	EPA 8081A
Endosulfan I	EPA 8081A
Endosulfan II	EPA 8081A
Endosulfan sulfate	EPA 8081A
Endrin	EPA 8081A
Endrin aldehyde	EPA 8081A
Endrin Ketone	EPA 8081A

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All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides

gamma-Chlordane	EPA 8081A
Heptachlor	EPA 8081A
Heptachlor epoxide	EPA 8081A
Kepone	EPA 8081A
	EPA 8270C
Lindane	EPA 8081A
Methoxychlor	EPA 8081A
Pentachloronitrobenzene	EPA 8270C
Toxaphene	EPA 8081A

Chlorinated Hydrocarbons

1,2,4,5-Tetrachlorobenzene	EPA 8270C
1,2,4-Trichlorobenzene	EPA 8270C
2-Chloronaphthalene	EPA 8270C
Hexachlorobenzene	EPA 8270C
Hexachlorobutadiene	EPA 8270C
Hexachlorocyclopentadiene	EPA 8270C
Hexachloroethane	EPA 8270C
Hexachlorophene	EPA 8270C
Hexachloropropene	EPA 8270C

Chlorophenoxy Acid Pesticides

2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dicamba	EPA 8151A

Chlorophenoxy Acid Pesticides

Dinoseb	EPA 8270C

Haloethers

4-Bromophenylphenyl ether	EPA 8270C
4-Chlorophenylphenyl ether	EPA 8270C
Bis(2-chloroethoxy)methane	EPA 8270C
Bis(2-chloroethyl)ether	EPA 8270C
Bis(2-chloroisopropyl) ether	EPA 8270C

Low Level Polynuclear Aromatic Hydrocarbons

Acenaphthene Low Level	EPA 8310
Acenaphthylene Low Level	EPA 8310
Anthracene Low Level	EPA 8310
Benzo(a)anthracene Low Level	EPA 8310
Benzo(a)pyrene Low Level	EPA 8310
Benzo(b)fluoranthene Low Level	EPA 8310
Benzo(g,h,i)perylene Low Level	EPA 8310
Benzo(k)fluoranthene Low Level	EPA 8310
Chrysene Low Level	EPA 8310
Dibenzo(a,h)anthracene Low Level	EPA 8310
Fluoranthene Low Level	EPA 8310
Fluorene Low Level	EPA 8310
Indeno(1,2,3-cd)pyrene Low Level	EPA 8310
Naphthalene Low Level	EPA 8310
Phenanthrene Low Level	EPA 8310
Pyrene Low Level	EPA 8310

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All approved analytes are listed below:

Metals I	
Barium, Total	EPA 6010B
Cadmium, Total	EPA 6010B
Calcium, Total	EPA 6010B
Chromium, Total	EPA 6010B
Copper, Total	EPA 6010B
Iron, Total	EPA 6010B
Lead, Total	EPA 6010B
Magnesium, Total	EPA 6010B
Manganese, Total	EPA 6010B
Nickel, Total	EPA 6010B
Potassium, Total	EPA 6010B
Silver, Total	EPA 6010B
Sodium, Total	EPA 6010B
Strontium, Total	EPA 6010B
Metals II	
Aluminum, Total	EPA 6010B
Antimony, Total	EPA 6010B
Arsenic, Total	EPA 6010B
Beryllium, Total	EPA 6010B
Chromium VI	EPA 7196A
Mercury, Total	EPA 7471A
Selenium, Total	EPA 6010B
Vanadium, Total	EPA 6010B
Zinc, Total	EPA 6010B

Metals III	
Cobalt, Total	EPA 6010B
Molybdenum, Total	EPA 6010B
Thallium, Total	EPA 6010B
Tin, Total	EPA 6010B
Titanium, Total	EPA 6010B
Miscellaneous	
Boron, Total	EPA 6010B
Cyanide, Total	EPA 9012B
Formaldehyde	EPA 8315
Organic Carbon, Total	Lloyd Kahn Method
Phenols	EPA 9065
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8330
1,3-Dinitrobenzene	EPA 8330
1,4-Naphthoquinone	EPA 8270C
2,4,6-Trinitrotoluene	EPA 8330
2,4-Dinitrotoluene	EPA 8270C
	EPA 8330
2,6-Dinitrotoluene	EPA 8270C
	EPA 8330
2-Amino-4,6-dinitrotoluene	EPA 8330
2-Nitrotoluene	EPA 8330
3-Nitrotoluene	EPA 8330
4-Amino-2,6-dinitrotoluene	EPA 8330
4-Dimethylaminoazobenzene	EPA 8270C

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Nitroaromatics and Isophorone

4-Nitrotoluene	EPA 8330
Hexahydro-1,3,5-trinitro-1,3,5-triazine	EPA 8330
Isophorone	EPA 8270C
Nitrobenzene	EPA 8270C
	EPA 8330
Nitroquinoline-1-oxide	EPA 8270C
Octahydro-tetranitro-tetrazocine	EPA 8330
Pyridine	EPA 8270C

Nitrosoamines

N-Nitrosodiethylamine	EPA 8270C
N-Nitrosodimethylamine	EPA 8270C
N-Nitrosodi-n-butylamine	EPA 8270C
N-Nitrosodi-n-propylamine	EPA 8270C
N-Nitrosodiphenylamine	EPA 8270C
N-nitrosomethylethylamine	EPA 8270C
N-nitrosomorpholine	EPA 8270C
N-nitrosopiperidine	EPA 8270C
N-Nitrosopyrrolidine	EPA 8270C

Organophosphate Pesticides

Dimethoate	EPA 8270C
Disulfoton	EPA 8270C
Parathion ethyl	EPA 8270C
Parathion methyl	EPA 8270C
Thionazin	EPA 8270C

Petroleum Hydrocarbons

Diesel Range Organics	EPA 8015B
Gasoline Range Organics	EPA 8015B
Oil and Grease Total Recoverable (HEM	EPA 9071 (Solvent:Hexane)

Phthalate Esters

Benzyl butyl phthalate	EPA 8270C
Bis(2-ethylhexyl) phthalate	EPA 8270C
Diethyl phthalate	EPA 8270C
Dimethyl phthalate	EPA 8270C
Di-n-butyl phthalate	EPA 8270C
Di-n-octyl phthalate	EPA 8270C

Polychlorinated Biphenyls

PCB-1016	EPA 8082
PCB-1221	EPA 8082
PCB-1232	EPA 8082
PCB-1242	EPA 8082
PCB-1248	EPA 8082
PCB-1254	EPA 8082
PCB-1260	EPA 8082
PCB-1262	EPA 8082
PCB-1268	EPA 8082

Polynuclear Aromatic Hydrocarbons

3-Methylcholanthrene	EPA 8270C
7,12-Dimethylbenzyl (a) anthracene	EPA 8270C
Acenaphthene	EPA 8270C

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Polynuclear Aromatic Hydrocarbons	
Acenaphthylene	EPA 8270C
Anthracene	EPA 8270C
Benzo(a)anthracene	EPA 8270C
Benzo(a)pyrene	EPA 8270C
Benzo(b)fluoranthene	EPA 8270C
Benzo(ghi)perylene	EPA 8270C
Benzo(k)fluoranthene	EPA 8270C
Chrysene	EPA 8270C
Dibenzo(a,h)anthracene	EPA 8270C
Fluoranthene	EPA 8270C
Fluorene	EPA 8270C
Indeno(1,2,3-cd)pyrene	EPA 8270C
Naphthalene	EPA 8270C
Phenanthrene	EPA 8270C
Pyrene	EPA 8270C
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270C
2,4,5-Trichlorophenol	EPA 8270C
2,4,6-Trichlorophenol	EPA 8270C
2,4-Dichlorophenol	EPA 8270C
2,4-Dimethylphenol	EPA 8270C
2,4-Dinitrophenol	EPA 8270C
2,6-Dichlorophenol	EPA 8270C
2-Chlorophenol	EPA 8270C
2-Methyl-4,6-dinitrophenol	EPA 8270C

Priority Pollutant Phenols	
2-Methylphenol	EPA 8270C
2-Nitrophenol	EPA 8270C
3-Methylphenol	EPA 8270C
4-Chloro-3-methylphenol	EPA 8270C
4-Methylphenol	EPA 8270C
4-Nitrophenol	EPA 8270C
Pentachlorophenol	EPA 8270C
Phenol	EPA 8270C
Semi-Volatile Organics	
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C
1,4-Dichlorobenzene, Semi-volatile	EPA 8270C
2-Methylnaphthalene	EPA 8270C
4-Amino biphenyl	EPA 8270C
Acetophenone	EPA 8270C
Aramite	EPA 8270C
Benzoic Acid	EPA 8270C
Benzyl alcohol	EPA 8270C
Dibenzofuran	EPA 8270C
Ethyl methanesulfonate	EPA 8270C
Isosafrole	EPA 8270C
Methyl methanesulfonate	EPA 8270C
O,O,O-Triethyl phosphorothioate	EPA 8270C
Phenacetin	EPA 8270C
Safrole	EPA 8270C

Serial No.: 48867

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. MOHAMMAD REZA TAND
ACCUTEST LABORATORIES OF NEW ENGLAND, INC
50 DANGELO STREET-BLDG ONE 495 TECHNOLOGY CENTER WEST
MARLBOROUGH, MA 01752

NY Lab Id No: 11791

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Volatile Aromatics		Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260B	Ethyl benzene	EPA 8260B
	EPA 8260C		EPA 8260C
1,2,4-Trimethylbenzene	EPA 8021B	Isopropylbenzene	EPA 8260B
	EPA 8260B		EPA 8260C
	EPA 8260C	Naphthalene, Volatile	EPA 8260B
1,2-Dichlorobenzene	EPA 8260B		EPA 8260C
	EPA 8260C	n-Butylbenzene	EPA 8260B
1,3,5-Trimethylbenzene	EPA 8021B		EPA 8260C
	EPA 8260B	n-Propylbenzene	EPA 8260B
	EPA 8260C		EPA 8260C
1,3-Dichlorobenzene	EPA 8260B	p-Isopropyltoluene (P-Cymene)	EPA 8260B
	EPA 8260C		EPA 8260C
1,4-Dichlorobenzene	EPA 8260B	sec-Butylbenzene	EPA 8260B
	EPA 8260C		EPA 8260C
2-Chlorotoluene	EPA 8260B	Styrene	EPA 8260B
	EPA 8260C		EPA 8260C
4-Chlorotoluene	EPA 8260B	tert-Butylbenzene	EPA 8260B
	EPA 8260C		EPA 8260C
Benzene	EPA 8021B	Toluene	EPA 8021B
	EPA 8260B		EPA 8260B
	EPA 8260C		EPA 8260C
Bromobenzene	EPA 8260B	Total Xylenes	EPA 8021B
	EPA 8260C		EPA 8260B
Chlorobenzene	EPA 8260B		EPA 8260C
	EPA 8260C		
Ethyl benzene	EPA 8021B		

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All approved analytes are listed below:

Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260B
	EPA 8260C
1,1,1-Trichloroethane	EPA 8260B
	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 8260B
	EPA 8260C
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
	EPA 8260C
1,1,2-Trichloroethane	EPA 8260B
	EPA 8260C
1,1-Dichloroethane	EPA 8260B
	EPA 8260C
1,1-Dichloroethene	EPA 8260B
	EPA 8260C
1,1-Dichloropropene	EPA 8260B
	EPA 8260C
1,2,3-Trichloropropane	EPA 8260B
	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260B
	EPA 8260C
1,2-Dibromoethane	EPA 8260B
	EPA 8260C
1,2-Dichloroethane	EPA 8260B
	EPA 8260C
1,2-Dichloropropane	EPA 8260B
	EPA 8260C

Volatile Halocarbons	
1,3-Dichloropropane	EPA 8260B
	EPA 8260C
2,2-Dichloropropane	EPA 8260B
	EPA 8260C
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B
	EPA 8260C
2-Chloroethylvinyl ether	EPA 8260B
	EPA 8260C
3-Chloropropene (Allyl chloride)	EPA 8260B
	EPA 8260C
Bromochloromethane	EPA 8260B
	EPA 8260C
Bromodichloromethane	EPA 8260B
	EPA 8260C
Bromoform	EPA 8260B
	EPA 8260C
Bromomethane	EPA 8260B
	EPA 8260C
Carbon tetrachloride	EPA 8260B
	EPA 8260C
Chloroethane	EPA 8260B
	EPA 8260C
Chloroform	EPA 8260B
	EPA 8260C
Chloromethane	EPA 8260B
	EPA 8260C

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All approved analytes are listed below:

Volatile Halocarbons	
cis-1,2-Dichloroethene	EPA 8260B
	EPA 8260C
cis-1,3-Dichloropropene	EPA 8260B
	EPA 8260C
Dibromochloromethane	EPA 8260B
	EPA 8260C
Dibromomethane	EPA 8260B
	EPA 8260C
Dichlorodifluoromethane	EPA 8260B
	EPA 8260C
Hexachlorobutadiene, Volatile	EPA 8260B
	EPA 8260C
Methyl iodide	EPA 8260B
	EPA 8260C
Methylene chloride	EPA 8260B
	EPA 8260C
Tetrachloroethene	EPA 8260B
	EPA 8260C
trans-1,2-Dichloroethene	EPA 8260B
	EPA 8260C
trans-1,3-Dichloropropene	EPA 8260B
	EPA 8260C
trans-1,4-Dichloro-2-butene	EPA 8260B
	EPA 8260C
Trichloroethene	EPA 8260B
	EPA 8260C
Volatile Halocarbons	
Trichlorofluoromethane	EPA 8260B
	EPA 8260C
Vinyl chloride	EPA 8260B
	EPA 8260C
Volatile Organics	
1,4-Dioxane	EPA 8260B
	EPA 8260C
2-Butanone (Methylethyl ketone)	EPA 8260B
	EPA 8260C
2-Hexanone	EPA 8260B
	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260B
	EPA 8260C
Acetone	EPA 8260B
	EPA 8260C
Acetonitrile	EPA 8260B
	EPA 8260C
Carbon Disulfide	EPA 8260B
	EPA 8260C
Cyclohexane	EPA 8260B
	EPA 8260C
Ethyl Acetate	EPA 8260B
	EPA 8260C
Ethylene Glycol	EPA 8015B
Isobutyl alcohol	EPA 8260B

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Volatile Organics

Isobutyl alcohol	EPA 8260C
Methyl acetate	EPA 8260B
	EPA 8260C
Methyl cyclohexane	EPA 8260B
	EPA 8260C
Methyl tert-butyl ether	EPA 8021B
	EPA 8260B
	EPA 8260C
o-Toluidine	EPA 8270C
Propionitrile	EPA 8260B
	EPA 8260C
tert-butyl alcohol	EPA 8260B
	EPA 8260C
Vinyl acetate	EPA 8260B
	EPA 8260C

Sample Preparation Methods

EPA 3050B
EPA 3060A
EPA 3545
EPA 3550B
EPA 3580
EPA 3585
EPA 5035A-H
EPA 5035A-L

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The Commonwealth of Massachusetts

Department of Environmental Protection

Division of Environmental Analysis
Senator William X. Wall Experiment Station

certifies

M-NY032

COLUMBIA ANALYTICAL SERVICES
1565 JEFFERSON RD
BUILDING 300, SUITE 360
ROCHESTER, NY 14623-0000

Laboratory Director: **Michael K. Perry**

for the analysis of **NON POTABLE WATER (CHEMISTRY)**

pursuant to 310 CMR 42.00

This certificate supersedes all previous Massachusetts certificates issued to this laboratory. The laboratory is regulated by and shall be responsible for being in compliance with Massachusetts regulations at 310 CMR 42.00.

This certificate is valid only when accompanied by the latest dated Certified Parameter List as issued by the Massachusetts D.E.P. Contact the Division of Environmental Analysis to verify the current certification status of the laboratory.

Certification is no guarantee of the validity of the data. This certification is subject to unannounced laboratory inspections.

Issued: **01 JUL 2012**

Expires: **30 JUN 2013**

Oscar C. Jacobs

Director, Division of Environmental Analysis

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 01 JUL 2012

M-NY032 **COLUMBIA ANALYTICAL SERVICES**
ROCHESTER NY

NON POTABLE WATER (CHEMISTRY) **Effective Date** **01 JUL 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
ALUMINUM	EPA 200.7
ANTIMONY	EPA 200.7
ANTIMONY	EPA 200.8
ARSENIC	EPA 200.7
ARSENIC	EPA 200.8
BERYLLIUM	EPA 200.7
BERYLLIUM	EPA 200.8
CADMIUM	EPA 200.7
CADMIUM	EPA 200.8
CHROMIUM	EPA 200.7
CHROMIUM	EPA 200.8
COBALT	EPA 200.7
COBALT	EPA 200.8
COPPER	EPA 200.7
COPPER	EPA 200.8
IRON	EPA 200.7
LEAD	EPA 200.7
LEAD	EPA 200.8
MANGANESE	EPA 200.7
MANGANESE	EPA 200.8
MERCURY	EPA 245.1
MOLYBDENUM	EPA 200.7
MOLYBDENUM	EPA 200.8
NICKEL	EPA 200.7
NICKEL	EPA 200.8
SELENIUM	EPA 200.7
SELENIUM	EPA 200.8
SILVER	EPA 200.7
SILVER	EPA 200.8
THALLIUM	EPA 200.7
THALLIUM	EPA 200.8
VANADIUM	EPA 200.7
VANADIUM	EPA 200.8
ZINC	EPA 200.7
ZINC	EPA 200.8
SPECIFIC CONDUCTIVITY	EPA 120.1
TOTAL DISSOLVED SOLIDS	SM 2540C
HARDNESS (CACO3), TOTAL	SM 2340C
CALCIUM	EPA 200.7
MAGNESIUM	EPA 200.7
SODIUM	EPA 200.7
POTASSIUM	EPA 200.7
ALKALINITY, TOTAL	SM 2320B

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 01 JUL 2012

M-NY032 **COLUMBIA ANALYTICAL SERVICES**
ROCHESTER NY

NON POTABLE WATER (CHEMISTRY) **Effective Date** **01 JUL 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
CHLORIDE	SM 4500-CL-E
CHLORIDE	EPA 300.0
FLUORIDE	EPA 300.0
SULFATE	EPA 300.0
AMMONIA-N	EPA 350.1
NITRATE-N	EPA 300.0
NITRATE-N	EPA 353.2
KJELDAHL-N	EPA 351.2
ORTHOPHOSPHATE	EPA 365.1
PHOSPHORUS, TOTAL	EPA 365.1
CHEMICAL OXYGEN DEMAND	EPA 410.4
BIOCHEMICAL OXYGEN DEMAND	SM 5210B
TOTAL ORGANIC CARBON	SM 5310C
CYANIDE, TOTAL	EPA 335.4
NON-FILTERABLE RESIDUE	SM 2540D
OIL AND GREASE	EPA 1664
PHENOLICS, TOTAL	EPA 420.4
VOLATILE HALOCARBONS	EPA 601
VOLATILE HALOCARBONS	EPA 624
VOLATILE AROMATICS	EPA 602
VOLATILE AROMATICS	EPA 624
SVOC-ACID EXTRACTABLES	EPA 625
SVOC-BASE/NEUTRAL EXTRACTABLES	EPA 625
POLYCHLORINATED BIPHENYLS (WATEF	EPA 608

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

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MR. MICHAEL PERRY
ALS GROUP USA CORP DBA ALS ENVIRONMENTAL
1565 JEFFERSON ROAD BUILDING 300, SUITE 360
ROCHESTER, NY 14623

NY Lab Id No: 10145

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Drinking Water Bacteriology	
Coliform, Total / E. coli (Qualitative)	SM 18-21 9223B (97) (Colilert)
Drinking Water Metals I	
Arsenic, Total	EPA 200.8 Rev. 5.4
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
Lead, Total	EPA 200.8 Rev. 5.4
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Mercury, Total	EPA 245.1 Rev. 3.0
Selenium, Total	EPA 200.8 Rev. 5.4
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Drinking Water Metals II	
Antimony, Total	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Drinking Water Metals II	
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Thallium, Total	EPA 200.8 Rev. 5.4
Drinking Water Metals III	
Sodium, Total	EPA 200.7 Rev. 4.4
Drinking Water Miscellaneous	
Organic Carbon, Total	SM 18-21 5310C (00)
Turbidity	EPA 180.1 Rev. 2.0
UV 254	SM 19-21 5910B
Drinking Water Non-Metals	
Alkalinity	SM 18-21 2320B (97)
Calcium Hardness	EPA 200.7 Rev. 4.4
Chloride	EPA 300.0 Rev. 2.1
	SM 18-21 4500-Cl- E (97)
Color	SM 18-21 2120B (01)
Cyanide	EPA 335.4 Rev. 1.0
Fluoride, Total	EPA 300.0 Rev. 2.1
Nitrate (as N)	EPA 353.2 Rev. 2.0
Nitrite (as N)	EPA 353.2 Rev. 2.0
Orthophosphate (as P)	EPA 365.1 Rev. 2.0
Silica, Dissolved	USGS I-2700-85
Solids, Total Dissolved	SM 18-21 2540C (97)
Specific Conductance	EPA 120.1 Rev. 1982
Sulfate (as SO4)	EPA 300.0 Rev. 2.1

Serial No.: 48168

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ALS GROUP USA CORP DBA ALS ENVIRONMENTAL
1565 JEFFERSON ROAD BUILDING 300, SUITE 360
ROCHESTER, NY 14623

NY Lab Id No: 10145

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Drinking Water Trihalomethanes	
Bromodichloromethane	EPA 524.2
Bromoform	EPA 524.2
Chloroform	EPA 524.2
Dibromochloromethane	EPA 524.2
Fuel Additives	
Methyl tert-butyl ether	EPA 524.2
Naphthalene	EPA 524.2
Microextractibles	
1,2-Dibromo-3-chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Volatile Aromatics	
1,2,3-Trichlorobenzene	EPA 524.2
1,2,4-Trichlorobenzene	EPA 524.2
1,2,4-Trimethylbenzene	EPA 524.2
1,2-Dichlorobenzene	EPA 524.2
1,3,5-Trimethylbenzene	EPA 524.2
1,3-Dichlorobenzene	EPA 524.2
1,4-Dichlorobenzene	EPA 524.2
2-Chlorotoluene	EPA 524.2
4-Chlorotoluene	EPA 524.2
Benzene	EPA 524.2
Bromobenzene	EPA 524.2
Chlorobenzene	EPA 524.2
Ethyl benzene	EPA 524.2

Volatile Aromatics	
Hexachlorobutadiene	EPA 524.2
Isopropylbenzene	EPA 524.2
n-Butylbenzene	EPA 524.2
n-Propylbenzene	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 524.2
sec-Butylbenzene	EPA 524.2
Styrene	EPA 524.2
tert-Butylbenzene	EPA 524.2
Toluene	EPA 524.2
Total Xylenes	EPA 524.2
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 524.2
1,1,1-Trichloroethane	EPA 524.2
1,1,2,2-Tetrachloroethane	EPA 524.2
1,1,2-Trichloroethane	EPA 524.2
1,1-Dichloroethane	EPA 524.2
1,1-Dichloroethene	EPA 524.2
1,1-Dichloropropene	EPA 524.2
1,2,3-Trichloropropane	EPA 524.2
1,2-Dichloroethane	EPA 524.2
1,2-Dichloropropane	EPA 524.2
1,3-Dichloropropane	EPA 524.2
2,2-Dichloropropane	EPA 524.2
Bromochloromethane	EPA 524.2
Bromomethane	EPA 524.2

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All approved analytes are listed below:

Volatile Halocarbons

Carbon tetrachloride	EPA 524.2
Chloroethane	EPA 524.2
Chloromethane	EPA 524.2
cis-1,2-Dichloroethene	EPA 524.2
cis-1,3-Dichloropropene	EPA 524.2
Dibromomethane	EPA 524.2
Dichlorodifluoromethane	EPA 524.2
Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 524.2
trans-1,2-Dichloroethene	EPA 524.2
trans-1,3-Dichloropropene	EPA 524.2
Trichloroethene	EPA 524.2
Trichlorofluoromethane	EPA 524.2
Vinyl chloride	EPA 524.2

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All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 624
	EPA 8260B
	EPA 8260C
Acrylonitrile	EPA 624
	EPA 8260B
	EPA 8260C
Ethyl methacrylate	EPA 8260B
	EPA 8260C
Methyl acrylonitrile	EPA 8260B
	EPA 8260C
Methyl methacrylate	EPA 8260B
	EPA 8260C
Amines	
1,2-Diphenylhydrazine	EPA 8270D
1,4-Phenylenediamine	EPA 8270D
1-Naphthylamine	EPA 8270D
2-Naphthylamine	EPA 8270D
2-Nitroaniline	EPA 8270D
3-Nitroaniline	EPA 8270D
4-Chloroaniline	EPA 8270D
4-Nitroaniline	EPA 8270D
5-Nitro-o-toluidine	EPA 8270D
Aniline	EPA 8270D
Carbazole	EPA 8270D
Diphenylamine	EPA 8270D

Amines	
Methapyrilene	EPA 8270D
Pronamide	EPA 8270D
Propionitrile	EPA 8260C
Pyridine	EPA 625
	EPA 8270D
Benzidines	
3,3'-Dichlorobenzidine	EPA 625
	EPA 8270D
3,3'-Dimethylbenzidine	EPA 8270D
Benzidine	EPA 625
	EPA 8270D
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 608
	EPA 8081B
4,4'-DDE	EPA 608
	EPA 8081B
4,4'-DDT	EPA 608
	EPA 8081B
Aldrin	EPA 608
	EPA 8081B
alpha-BHC	EPA 608
	EPA 8081B
alpha-Chlordane	EPA 8081B
beta-BHC	EPA 608
	EPA 8081B

Serial No.: 49058

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1565 JEFFERSON ROAD BUILDING 300, SUITE 360
ROCHESTER, NY 14623

NY Lab Id No: 10145

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides

Chlordane Total	EPA 608
	EPA 8081B
Chlorobenzilate	EPA 8270D
delta-BHC	EPA 608
	EPA 8081B
Diallate	EPA 8270D
Dieldrin	EPA 608
	EPA 8081B
Endosulfan I	EPA 608
	EPA 8081B
Endosulfan II	EPA 608
	EPA 8081B
Endosulfan sulfate	EPA 608
	EPA 8081B
Endrin	EPA 608
	EPA 8081B
Endrin aldehyde	EPA 608
	EPA 8081B
Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081B
Heptachlor	EPA 608
	EPA 8081B
Heptachlor epoxide	EPA 608
	EPA 8081B
Isodrin	EPA 8270D
Kepone	EPA 8081B

Chlorinated Hydrocarbon Pesticides

Lindane	EPA 608
	EPA 8081B
Methoxychlor	EPA 608
	EPA 8081B
Mirex	EPA 8081B
PCNB	EPA 8270D
Toxaphene	EPA 608
	EPA 8081B

Chlorinated Hydrocarbons

1,2,3-Trichlorobenzene	EPA 8260C
1,2,4,5-Tetrachlorobenzene	EPA 8270D
1,2,4-Trichlorobenzene	EPA 625
	EPA 8270D
2-Chloronaphthalene	EPA 625
	EPA 8270D
Hexachlorobenzene	EPA 625
	EPA 8081B
	EPA 8270D
Hexachlorobutadiene	EPA 625
	EPA 8270D
Hexachlorocyclopentadiene	EPA 625
	EPA 8270D
Hexachloroethane	EPA 625
	EPA 8270D
Hexachloropropene	EPA 8270D

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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Revised April 09, 2013

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Chlorinated Hydrocarbons	
Pentachlorobenzene	EPA 8270D
Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dicamba	EPA 8151A
Dinoseb	EPA 8151A
	EPA 8270D
Demand	
Biochemical Oxygen Demand	SM 18-21 5210B (01)
Carbonaceous BOD	SM 18-21 5210B (01)
Chemical Oxygen Demand	EPA 410.4 Rev. 2.0
Dissolved Gases	
Acetylene	RSK-175
Ethane	RSK-175
Ethene (Ethylene)	RSK-175
Methane	RSK-175
Propane	RSK-175
Fuel Oxygenates	
Di-isopropyl ether	EPA 8260B
	EPA 8260C
Ethanol	EPA 8015C
Methyl tert-butyl ether	EPA 8021B
	EPA 8260B
Fuel Oxygenates	
Methyl tert-butyl ether	EPA 8260C
tert-amyl methyl ether (TAME)	EPA 8260B
	EPA 8260C
tert-butyl alcohol	EPA 8260B
	EPA 8260C
tert-butyl ethyl ether (ETBE)	EPA 8260B
	EPA 8260C
Haloethers	
4-Bromophenylphenyl ether	EPA 625
	EPA 8270D
4-Chlorophenylphenyl ether	EPA 625
	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 625
	EPA 8270D
Bis(2-chloroethyl)ether	EPA 625
	EPA 8270D
Bis(2-chloroisopropyl) ether	EPA 625
	EPA 8270D
Low Level Polynuclear Aromatics	
Acenaphthene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Acenaphthylene Low Level	EPA 610
	EPA 8270D
	EPA 8310

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Low Level Polynuclear Aromatics	
Anthracene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Benzo(a)anthracene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Benzo(a)pyrene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Benzo(b)fluoranthene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Benzo(g,h,i)perylene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Benzo(k)fluoranthene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Chrysene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Dibenzo(a,h)anthracene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Fluoranthene Low Level	EPA 610
	EPA 8270D
Fluoranthene Low Level	EPA 8310
Fluorene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Indeno(1,2,3-cd)pyrene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Naphthalene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Phenanthrene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Pyrene Low Level	EPA 610
	EPA 8270D
	EPA 8310
Mineral	
Alkalinity	SM 18-21 2320B (97)
Calcium Hardness	EPA 200.7 Rev. 4.4
	SM 18-21 2340B (97)
Chloride	EPA 300.0 Rev. 2.1
	EPA 9056A
	SM 18-21 4500-Cl- E (97)
Fluoride, Total	EPA 300.0 Rev. 2.1
	EPA 9056A

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Mineral	
Hardness, Total	EPA 200.7 Rev. 4.4
	SM 18-21 2340B (97)
	SM 18-21 2340C (97)
Sulfate (as SO4)	EPA 300.0 Rev. 2.1
	EPA 9056A
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270D
	EPA 8330B
1,3-Dinitrobenzene	EPA 8270D
	EPA 8330B
1,4-Naphthoquinone	EPA 8270D
2,4,6-Trinitrotoluene	EPA 8330B
2,4-Dinitrotoluene	EPA 625
	EPA 8270D
	EPA 8330B
2,6-Dinitrotoluene	EPA 625
	EPA 8270D
	EPA 8330B
2-Amino-4,6-dinitrotoluene	EPA 8330B
2-Nitrotoluene	EPA 8330B
3,5-Dinitroaniline	EPA 8330B
3-Nitrotoluene	EPA 8330B
4-Amino-2,6-dinitrotoluene	EPA 8330B
4-Nitrotoluene	EPA 8330B
Hexahydro-1,3,5-trinitro-1,3,5-triazine	EPA 8330B
Nitroaromatics and Isophorone	
Isophorone	EPA 625
	EPA 8270D
Methyl-2,4,6-trinitrophenylnitramine	EPA 8330B
Nitrobenzene	EPA 625
	EPA 8270D
	EPA 8330B
Nitroglycerine	EPA 8330B
Nitroquinoline-1-oxide	EPA 8270D
Octahydro-tetranitro-tetrazocine	EPA 8330B
Pentaerythritol tetranitrate	EPA 8330B
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270D
N-Nitrosodimethylamine	EPA 625
	EPA 8270D
N-Nitrosodi-n-butylamine	EPA 8270D
N-Nitrosodi-n-propylamine	EPA 625
	EPA 8270D
N-Nitrosodiphenylamine	EPA 625
	EPA 8270D
N-nitrosomethylethylamine	EPA 8270D
N-nitrosomorpholine	EPA 8270D
N-nitrosopiperidine	EPA 8270D
N-Nitrosopyrrolidine	EPA 8270D
Nutrient	
Ammonia (as N)	EPA 350.1 Rev. 2.0

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Nutrient	
Kjeldahl Nitrogen, Total	EPA 351.2 Rev. 2.0
Nitrate (as N)	EPA 300.0 Rev. 2.1
	EPA 353.2 Rev. 2.0
	EPA 9056A
Nitrite (as N)	EPA 300.0 Rev. 2.1
	EPA 353.2 Rev. 2.0
	EPA 9056A
Orthophosphate (as P)	EPA 365.1 Rev. 2.0
Phosphorus, Total	EPA 365.1 Rev. 2.0
Organophosphate Pesticides	
Atrazine	EPA 8270D
Dimethoate	EPA 8270D
Disulfoton	EPA 8270D
Parathion ethyl	EPA 8270D
Parathion methyl	EPA 8270D
Phorate	EPA 8270D
Thionazin	EPA 8270D
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015C
Gasoline Range Organics	EPA 8015C
Phthalate Esters	
Benzyl butyl phthalate	EPA 625
	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 625

Phthalate Esters	
Bis(2-ethylhexyl) phthalate	EPA 8270D
Diethyl phthalate	EPA 625
	EPA 8270D
Dimethyl phthalate	EPA 625
	EPA 8270D
Di-n-butyl phthalate	EPA 625
	EPA 8270D
Di-n-octyl phthalate	EPA 625
	EPA 8270D
Polychlorinated Biphenyls	
PCB-1016	EPA 608
	EPA 8082A
PCB-1221	EPA 608
	EPA 8082A
PCB-1232	EPA 608
	EPA 8082A
PCB-1242	EPA 608
	EPA 8082A
PCB-1248	EPA 608
	EPA 8082A
PCB-1254	EPA 608
	EPA 8082A
PCB-1260	EPA 608
	EPA 8082A
PCB-1262	EPA 8082A

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Polychlorinated Biphenyls	
PCB-1268	EPA 8082A
Polynuclear Aromatics	
2-Acetylaminofluorene	EPA 8270D
3-Methylcholanthrene	EPA 8270D
7,12-Dimethylbenzyl (a) anthracene	EPA 8270D
Acenaphthene	EPA 625
	EPA 8270D
Acenaphthylene	EPA 625
	EPA 8270D
Anthracene	EPA 625
	EPA 8270D
Benzo(a)anthracene	EPA 625
	EPA 8270D
Benzo(a)pyrene	EPA 625
	EPA 8270D
Benzo(b)fluoranthene	EPA 625
	EPA 8270D
Benzo(ghi)perylene	EPA 625
	EPA 8270D
Benzo(k)fluoranthene	EPA 625
	EPA 8270D
Chrysene	EPA 625
	EPA 8270D
Dibenzo(a,h)anthracene	EPA 625
	EPA 8270D
Polynuclear Aromatics	
Fluoranthene	EPA 625
	EPA 8270D
Fluorene	EPA 625
	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 625
	EPA 8270D
Naphthalene	EPA 625
	EPA 8270D
Phenanthrene	EPA 625
	EPA 8270D
Pyrene	EPA 625
	EPA 8270D
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270D
2,4,5-Trichlorophenol	EPA 625
	EPA 8270D
2,4,6-Trichlorophenol	EPA 625
	EPA 8270D
2,4-Dichlorophenol	EPA 625
	EPA 8270D
2,4-Dimethylphenol	EPA 625
	EPA 8270D
2,4-Dinitrophenol	EPA 625
	EPA 8270D
2,6-Dichlorophenol	EPA 8270D

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Priority Pollutant Phenols	
2-Chlorophenol	EPA 625
	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 625
	EPA 8270D
2-Methylphenol	EPA 8270D
2-Nitrophenol	EPA 625
	EPA 8270D
3-Methylphenol	EPA 8270D
4-Chloro-3-methylphenol	EPA 625
	EPA 8270D
4-Methylphenol	EPA 8270D
4-Nitrophenol	EPA 625
	EPA 8270D
Cresols, Total	EPA 8270D
Pentachlorophenol	EPA 625
	EPA 8151A
	EPA 8270D
Phenol	EPA 625
	EPA 8270D
Residue	
Settleable Solids	SM 18-21 2540 F (97)
Solids, Total	SM 18-21 2540B (97)
Solids, Total Dissolved	SM 18-21 2540C (97)
Solids, Total Suspended	SM 18-21 2540D (97)

Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
2-Methylnaphthalene	EPA 8270D
2-Picoline	EPA 8270D
4-Amino biphenyl	EPA 8270D
Acetophenone	EPA 8270D
Benzaldehyde	EPA 8270D
Benzoic Acid	EPA 8270D
Benzyl alcohol	EPA 8270D
Caprolactam	EPA 8270D
Dibenzofuran	EPA 8270D
Ethyl methanesulfonate	EPA 8270D
Isosafrole	EPA 8270D
Methyl methanesulfonate	EPA 8270D
O,O,O-Triethyl phosphorothioate	EPA 8270D
p-Dimethylaminoazobenzene	EPA 8270D
Phenacetin	EPA 8270D
Safrole	EPA 8270D
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260B
	EPA 8260C
1,2,4-Trimethylbenzene	EPA 8021B
	EPA 8260B

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Volatile Aromatics	
1,2,4-Trimethylbenzene	EPA 8260C
1,2-Dichlorobenzene	EPA 601
	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
1,3,5-Trimethylbenzene	EPA 8021B
	EPA 8260B
	EPA 8260C
1,3-Dichlorobenzene	EPA 601
	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
1,4-Dichlorobenzene	EPA 601
	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
2-Chlorotoluene	EPA 8260C
4-Chlorotoluene	EPA 8260C
Benzene	EPA 602
	EPA 624

Volatile Aromatics	
Benzene	EPA 8021B
	EPA 8260B
	EPA 8260C
Bromobenzene	EPA 8260B
	EPA 8260C
Chlorobenzene	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Ethyl benzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Isopropylbenzene	EPA 8021B
	EPA 8260B
	EPA 8260C
Naphthalene, Volatile	EPA 8260B
	EPA 8260C
n-Butylbenzene	EPA 8021B
	EPA 8260B
	EPA 8260C
n-Propylbenzene	EPA 8021B
	EPA 8260B
	EPA 8260C

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Volatile Aromatics	
p-Isopropyltoluene (P-Cymene)	EPA 8021B
	EPA 8260B
	EPA 8260C
sec-Butylbenzene	EPA 8021B
	EPA 8260B
	EPA 8260C
Styrene	EPA 624
	EPA 8260B
	EPA 8260C
tert-Butylbenzene	EPA 8260C
Toluene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Total Xylenes	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Volatile Chlorinated Organics	
Benzyl chloride	EPA 8260B
	EPA 8260C
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260B

Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260C
1,1,1-Trichloroethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
	EPA 8260C
1,1,2-Trichloroethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
1,1-Dichloroethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
1,1-Dichloroethene	EPA 601
	EPA 624
	EPA 8021B

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Volatile Halocarbons	
1,1-Dichloroethene	EPA 8260B
	EPA 8260C
1,1-Dichloropropene	EPA 8260B
	EPA 8260C
1,2,3-Trichloropropane	EPA 8260B
	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8011
	EPA 8260B
	EPA 8260C
1,2-Dibromoethane	EPA 8011
	EPA 8260B
	EPA 8260C
1,2-Dichloro-1,1,2-Trifluoroethane	EPA 8260C
1,2-Dichloroethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
1,2-Dichloropropane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
1,3-Dichloropropane	EPA 8260B
	EPA 8260C
2,2-Dichloropropane	EPA 8260B

Volatile Halocarbons	
2,2-Dichloropropane	EPA 8260C
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B
	EPA 8260C
2-Chloroethylvinyl ether	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
3-Chloropropene (Allyl chloride)	EPA 8260B
	EPA 8260C
Bromochloromethane	EPA 8260B
	EPA 8260C
Bromodichloromethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Bromoform	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Bromomethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B

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WADSWORTH CENTER

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Revised April 09, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. MICHAEL PERRY
ALS GROUP USA CORP DBA ALS ENVIRONMENTAL
1565 JEFFERSON ROAD BUILDING 300, SUITE 360
ROCHESTER, NY 14623

NY Lab Id No: 10145

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All approved analytes are listed below:

Volatile Halocarbons	
Bromomethane	EPA 8260C
Carbon tetrachloride	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Chloroethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Chloroform	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Chloromethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
cis-1,2-Dichloroethene	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
cis-1,3-Dichloropropene	EPA 601

Volatile Halocarbons	
cis-1,3-Dichloropropene	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Dibromochloromethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Dibromomethane	EPA 8260B
	EPA 8260C
Dichlorodifluoromethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Hexachlorobutadiene, Volatile	EPA 8260B
	EPA 8260C
Methyl iodide	EPA 8260B
	EPA 8260C
Methylene chloride	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Tetrachloroethene	EPA 601

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Volatile Halocarbons	
Tetrachloroethene	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
trans-1,2-Dichloroethene	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
trans-1,3-Dichloropropene	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
trans-1,4-Dichloro-2-butene	EPA 8260B
	EPA 8260C
Trichloroethene	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Trichlorofluoromethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Volatile Halocarbons	
Vinyl chloride	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
	EPA 8260C
Volatiles Organics	
1,4-Dioxane	EPA 8260B
	EPA 8260C
2-Butanone (Methylethyl ketone)	EPA 8260B
	EPA 8260C
2-Hexanone	EPA 8260B
	EPA 8260C
2-Nitropropane	EPA 8260B
	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260B
	EPA 8260C
Acetone	EPA 8260B
	EPA 8260C
Acetonitrile	EPA 8260B
	EPA 8260C
Carbon Disulfide	EPA 8260B
	EPA 8260C
Cyclohexane	EPA 8260B
	EPA 8260C
Di-ethyl ether	EPA 8260B

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Volatiles Organics	
Di-ethyl ether	EPA 8260C
Ethyl Acetate	EPA 8015C
	EPA 8260B
	EPA 8260C
Ethylene Glycol	EPA 8015C
Isobutyl alcohol	EPA 8015C
	EPA 8260B
	EPA 8260C
Isopropanol	EPA 8260B
	EPA 8260C
Methyl acetate	EPA 8260B
	EPA 8260C
Methyl cyclohexane	EPA 8260B
	EPA 8260C
	EPA 8270D
n-Butanol	EPA 8260B
	EPA 8260C
o-Toluidine	EPA 8260B
	EPA 8260C
	EPA 8270D
Vinyl acetate	EPA 8260B
	EPA 8260C
Wastewater Metals I	
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

Wastewater Metals I	
Barium, Total	EPA 6010C
	EPA 6020A
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Calcium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Iron, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Lead, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Magnesium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

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Wastewater Metals I	
Manganese, Total	EPA 6010C
	EPA 6020A
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Potassium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Sodium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Strontium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Wastewater Metals II	
Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Antimony, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Arsenic, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

Wastewater Metals II	
Arsenic, Total	EPA 6010C
	EPA 6020A
	EPA 7010
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Chromium VI	EPA 218.6 Rev. 3.3
	EPA 7196A
	EPA 7199
	SM 20-21 3500-Cr B (01)
Mercury, Low Level	EPA 1631E
Mercury, Total	EPA 245.1 Rev. 3.0
	EPA 7470A
Selenium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A

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Wastewater Metals III	
Cobalt, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Gold, Total	EPA 200.7 Rev. 4.4
Molybdenum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Palladium, Total	EPA 200.7 Rev. 4.4
Thallium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010C
	EPA 6020A
Tin, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Titanium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Uranium (Mass)	EPA 6020A
Wastewater Miscellaneous	
Boron, Total	EPA 200.7 Rev. 4.4
	EPA 6010C
Bromide	EPA 300.0 Rev. 2.1
	EPA 9056A
Color	SM 18-21 2120B (01)

Wastewater Miscellaneous	
Corrosivity	SM 18-19 2330
Cyanide, Total	EPA 335.4 Rev. 1.0
	EPA 9012B
	SM 18-21 4500-CN E (99)
	SM 18-21 4500-CN G (99)
Formaldehyde	EPA 8315
Oil and Grease Total Recoverable (HEM	EPA 1664A
Organic Carbon, Total	EPA 9060A
	SM 18-21 5310C (00)
Perchlorate	EPA 6850
Phenols	EPA 420.4 Rev. 1.0
	EPA 9066
Silica, Dissolved	USGS I-2700-85
Specific Conductance	EPA 120.1 Rev. 1982
Sulfide (as S)	EPA 9034
	SM 19-21 4500-S F (00)
Surfactant (MBAS)	SM 18-21 5540C (00)
Total Petroleum Hydrocarbons	EPA 1664A
Turbidity	EPA 180.1 Rev. 2.0
Sample Preparation Methods	
	EPA 3005A
	EPA 3010A
	EPA 3510C
	EPA 3535A
	EPA 5030B

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Sample Preparation Methods

EPA 5030C

EPA 9030B

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Acrylates	
Acrolein (Propenal)	EPA 8260B
	EPA 8260C
Acrylonitrile	EPA 8260B
	EPA 8260C
Ethyl methacrylate	EPA 8260B
	EPA 8260C
Methyl acrylonitrile	EPA 8260B
	EPA 8260C
Methyl methacrylate	EPA 8260B
	EPA 8260C
Amines	
1,2-Diphenylhydrazine	EPA 8270D
1,4-Phenylenediamine	EPA 8270D
1-Naphthylamine	EPA 8270D
2-Naphthylamine	EPA 8270D
2-Nitroaniline	EPA 8270D
3-Nitroaniline	EPA 8270D
4-Chloroaniline	EPA 8270D
4-Nitroaniline	EPA 8270D
5-Chloro-2-methylaniline	EPA 8270D
5-Nitro-o-toluidine	EPA 8270D
Aniline	EPA 8270D
Carbazole	EPA 8270D
Diphenylamine	EPA 8270D
Methapyrilene	EPA 8270D

Amines	
Pronamide	EPA 8270D
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270D
3,3'-Dimethylbenzidine	EPA 8270D
Benzidine	EPA 8270D
Characteristic Testing	
Corrosivity	EPA 9045D
Free Liquids	EPA 9095B
Ignitability	EPA 1010A
Reactivity	SW-846 Ch7 Sec. 7.3
Synthetic Precipitation Leaching Proc.	EPA 1312
TCLP	EPA 1311
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081B
4,4'-DDE	EPA 8081B
4,4'-DDT	EPA 8081B
Aldrin	EPA 8081B
alpha-BHC	EPA 8081B
alpha-Chlordane	EPA 8081B
Atrazine	EPA 8270D
beta-BHC	EPA 8081B
Chlordane Total	EPA 8081B
Chlorobenzilate	EPA 8270D
delta-BHC	EPA 8081B

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Chlorinated Hydrocarbon Pesticides

Diallate	EPA 8270D
Dieldrin	EPA 8081B
Endosulfan I	EPA 8081B
Endosulfan II	EPA 8081B
Endosulfan sulfate	EPA 8081B
Endrin	EPA 8081B
Endrin aldehyde	EPA 8081B
Endrin Ketone	EPA 8081B
gamma-Chlordane	EPA 8081B
Heptachlor	EPA 8081B
Heptachlor epoxide	EPA 8081B
Isodrin	EPA 8270D
Kepone	EPA 8081B
Lindane	EPA 8081B
Methoxychlor	EPA 8081B
Pentachloronitrobenzene	EPA 8270D
Toxaphene	EPA 8081B

Chlorinated Hydrocarbons

1,2,3-Trichlorobenzene	EPA 8260C
1,2,4,5-Tetrachlorobenzene	EPA 8270D
1,2,4-Trichlorobenzene	EPA 8270D
1-Chloronaphthalene	EPA 8270D
2-Chloronaphthalene	EPA 8270D
Hexachlorobenzene	EPA 8270D
Hexachlorobutadiene	EPA 8270D

Chlorinated Hydrocarbons

Hexachlorocyclopentadiene	EPA 8270D
Hexachloroethane	EPA 8270D
Hexachlorophene	EPA 8270D
Hexachloropropene	EPA 8270D
Pentachlorobenzene	EPA 8270D

Chlorophenoxy Acid Pesticides

2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dicamba	EPA 8151A
Dinoseb	EPA 8270D
Pentachlorophenol	EPA 8151A

Haloethers

4-Bromophenylphenyl ether	EPA 8270D
4-Chlorophenylphenyl ether	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 8270D
Bis(2-chloroethyl)ether	EPA 8270D
Bis(2-chloroisopropyl) ether	EPA 8270D

Low Level Polynuclear Aromatic Hydrocarbons

Acenaphthene Low Level	EPA 8270D
Acenaphthylene Low Level	EPA 8270D
Anthracene Low Level	EPA 8270D
Benzo(a)anthracene Low Level	EPA 8270D
Benzo(a)pyrene Low Level	EPA 8270D

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Low Level Polynuclear Aromatic Hydrocarbons	
Benzo(b)fluoranthene Low Level	EPA 8270D
Benzo(g,h,i)perylene Low Level	EPA 8270D
Benzo(k)fluoranthene Low Level	EPA 8270D
Chrysene Low Level	EPA 8270D
Dibenzo(a,h)anthracene Low Level	EPA 8270D
Fluoranthene Low Level	EPA 8270D
Fluorene Low Level	EPA 8270D
Indeno(1,2,3-cd)pyrene Low Level	EPA 8270D
Naphthalene Low Level	EPA 8270D
Phenanthrene Low Level	EPA 8270D
Pyrene Low Level	EPA 8270D
Metals I	
Barium, Total	EPA 6010C
	EPA 6020A
Cadmium, Total	EPA 6010C
	EPA 6020A
Calcium, Total	EPA 6010C
Chromium, Total	EPA 6010C
	EPA 6020A
Copper, Total	EPA 6010C
	EPA 6020A
Iron, Total	EPA 6010C
Lead, Total	EPA 6010C
	EPA 6020A
Magnesium, Total	EPA 6010C
Metals I	
Manganese, Total	EPA 6010C
	EPA 6020A
Nickel, Total	EPA 6010C
	EPA 6020A
Potassium, Total	EPA 6010C
Silver, Total	EPA 6010C
	EPA 6020A
Sodium, Total	EPA 6010C
Strontium, Total	EPA 6010C
Metals II	
Aluminum, Total	EPA 6010C
Antimony, Total	EPA 6010C
	EPA 6020A
Arsenic, Total	EPA 6010C
	EPA 6020A
	EPA 7060A
Beryllium, Total	EPA 6010C
	EPA 6020A
Chromium VI	EPA 7196A
	EPA 7199
Lithium, Total	EPA 6010C
Mercury, Total	EPA 7471B
Selenium, Total	EPA 6010C
	EPA 6020A
Vanadium, Total	EPA 6010C

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Metals II	
Vanadium, Total	EPA 6020A
Zinc, Total	EPA 6010C
	EPA 6020A
Metals III	
Cobalt, Total	EPA 6010C
	EPA 6020A
Molybdenum, Total	EPA 6010C
	EPA 6020A
Silica, Dissolved	EPA 6010C
Thallium, Total	EPA 6010C
	EPA 6020A
Tin, Total	EPA 6010C
Titanium, Total	EPA 6010C
Minerals	
Bromide	EPA 9056A
Chloride	EPA 9056A
Fluoride, Total	EPA 9056A
Sulfate (as SO4)	EPA 9056A
Miscellaneous	
Boron, Total	EPA 6010C
Cyanide, Total	EPA 9012B
Formaldehyde	EPA 8315
Organic Carbon, Total	Lloyd Kahn Method
Perchlorate	EPA 6850
Miscellaneous	
Phenols	EPA 9066
Sulfide (as S)	EPA 9034
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270D
	EPA 8330
	EPA 8330B
1,3-Dinitrobenzene	EPA 8270D
	EPA 8330
	EPA 8330B
1,4-Naphthoquinone	EPA 8270D
2,4,6-Trinitrotoluene	EPA 8330
	EPA 8330B
2,4-Dinitrotoluene	EPA 8270D
	EPA 8330
	EPA 8330B
2,6-Dinitrotoluene	EPA 8270D
	EPA 8330
	EPA 8330B
2-Amino-4,6-dinitrotoluene	EPA 8330
	EPA 8330B
2-Nitrotoluene	EPA 8330
	EPA 8330B
3,5-Dinitroaniline	EPA 8330B
3-Nitrotoluene	EPA 8330
	EPA 8330B

Serial No.: 48170

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

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Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. MICHAEL PERRY
ALS GROUP USA CORP DBA ALS ENVIRONMENTAL
1565 JEFFERSON ROAD BUILDING 300, SUITE 360
ROCHESTER, NY 14623

NY Lab Id No: 10145

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All approved analytes are listed below:

Nitroaromatics and Isophorone	
4-Amino-2,6-dinitrotoluene	EPA 8330
	EPA 8330B
4-Dimethylaminoazobenzene	EPA 8270D
4-Nitrotoluene	EPA 8330
	EPA 8330B
Hexahydro-1,3,5-trinitro-1,3,5-triazine	EPA 8330
	EPA 8330B
Isophorone	EPA 8270D
Methyl-2,4,6-trinitrophenylnitramine	EPA 8330
	EPA 8330B
Nitrobenzene	EPA 8270D
	EPA 8330
	EPA 8330B
Nitroglycerine	EPA 8330B
Nitroquinoline-1-oxide	EPA 8270D
Octahydro-tetranitro-tetrazocine	EPA 8330
	EPA 8330B
Pentaerythritol tetranitrate	EPA 8330B
Pyridine	EPA 8270D
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270D
N-Nitrosodimethylamine	EPA 8270D
N-Nitrosodi-n-butylamine	EPA 8270D
N-Nitrosodi-n-propylamine	EPA 8270D
N-Nitrosodiphenylamine	EPA 8270D

Nitrosoamines	
N-nitrosomethylethylamine	EPA 8270D
N-nitrosomorpholine	EPA 8270D
N-nitrosopiperidine	EPA 8270D
N-Nitrosopyrrolidine	EPA 8270D
Nutrients	
Nitrate (as N)	EPA 9056A
Nitrite (as N)	EPA 9056A
Organophosphate Pesticides	
Dimethoate	EPA 8270D
Disulfoton	EPA 8270D
Parathion ethyl	EPA 8270D
Parathion methyl	EPA 8270D
Phorate	EPA 8270D
Sulfotepp	EPA 8270D
Thionazin	EPA 8270D
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015C
Gasoline Range Organics	EPA 8015C
Phthalate Esters	
Benzyl butyl phthalate	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 8270D
Diethyl phthalate	EPA 8270D
Dimethyl phthalate	EPA 8270D
Di-n-butyl phthalate	EPA 8270D

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Phthalate Esters	
Di-n-octyl phthalate	EPA 8270D
Polychlorinated Biphenyls	
PCB-1016	EPA 8082A
PCB-1221	EPA 8082A
PCB-1232	EPA 8082A
PCB-1242	EPA 8082A
PCB-1248	EPA 8082A
PCB-1254	EPA 8082A
PCB-1260	EPA 8082A
PCB-1262	EPA 8082A
PCB-1268	EPA 8082A
Polynuclear Aromatic Hydrocarbons	
2-Acetylaminofluorene	EPA 8270D
3-Methylcholanthrene	EPA 8270D
7,12-Dimethylbenzyl (a) anthracene	EPA 8270D
Acenaphthene	EPA 8270D
Acenaphthylene	EPA 8270D
Anthracene	EPA 8270D
Benzo(a)anthracene	EPA 8270D
Benzo(a)pyrene	EPA 8270D
Benzo(b)fluoranthene	EPA 8270D
Benzo(ghi)perylene	EPA 8270D
Benzo(k)fluoranthene	EPA 8270D
Chrysene	EPA 8270D
Dibenzo(a,h)anthracene	EPA 8270D

Polynuclear Aromatic Hydrocarbons	
Fluoranthene	EPA 8270D
Fluorene	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 8270D
Naphthalene	EPA 8270D
Phenanthrene	EPA 8270D
Pyrene	EPA 8270D
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270D
2,4,5-Trichlorophenol	EPA 8270D
2,4,6-Trichlorophenol	EPA 8270D
2,4-Dichlorophenol	EPA 8270D
2,4-Dimethylphenol	EPA 8270D
2,4-Dinitrophenol	EPA 8270D
2,6-Dichlorophenol	EPA 8270D
2-Chlorophenol	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 8270D
2-Methylphenol	EPA 8270D
2-Nitrophenol	EPA 8270D
3-Methylphenol	EPA 8270D
4-Chloro-3-methylphenol	EPA 8270D
4-Methylphenol	EPA 8270D
4-Nitrophenol	EPA 8270D
Pentachlorophenol	EPA 8270D
Phenol	EPA 8270D

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All approved analytes are listed below:

Semi-Volatile Organics

1,1'-Biphenyl	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270D
2-Methylnaphthalene	EPA 8270D
2-Picoline	EPA 8270D
4-Amino biphenyl	EPA 8270D
Acetophenone	EPA 8270D
Aramite	EPA 8270D
Benzaldehyde	EPA 8270D
Benzoic Acid	EPA 8270D
Benzyl alcohol	EPA 8270D
Caprolactam	EPA 8270D
Dibenzofuran	EPA 8270D
Ethyl methanesulfonate	EPA 8270D
Isosafrole	EPA 8270D
Methyl methanesulfonate	EPA 8270D
O,O,O-Triethyl phosphorothioate	EPA 8270D
Phenacetin	EPA 8270D
Safrole	EPA 8270D

Volatile Aromatics

1,2,4-Trichlorobenzene, Volatile	EPA 8260B
	EPA 8260C
1,2,4-Trimethylbenzene	EPA 8260B
	EPA 8260C

Volatile Aromatics

1,2-Dichlorobenzene	EPA 8260B
	EPA 8260C
1,3,5-Trimethylbenzene	EPA 8260B
	EPA 8260C
1,3-Dichlorobenzene	EPA 8260B
	EPA 8260C
1,4-Dichlorobenzene	EPA 8260B
	EPA 8260C
2-Chlorotoluene	EPA 8260B
	EPA 8260C
4-Chlorotoluene	EPA 8260B
	EPA 8260C
Benzene	EPA 8260B
	EPA 8260C
Bromobenzene	EPA 8260B
	EPA 8260C
Chlorobenzene	EPA 8260B
	EPA 8260C
Ethyl benzene	EPA 8260B
	EPA 8260C
Isopropylbenzene	EPA 8260B
	EPA 8260C
Naphthalene, Volatile	EPA 8260B
	EPA 8260C
n-Butylbenzene	EPA 8260B
	EPA 8260C

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All approved analytes are listed below:

Volatile Aromatics	
n-Propylbenzene	EPA 8260B
	EPA 8260C
p-Isopropyltoluene (P-Cymene)	EPA 8260B
	EPA 8260C
sec-Butylbenzene	EPA 8260B
	EPA 8260C
Styrene	EPA 8260B
	EPA 8260C
tert-Butylbenzene	EPA 8260B
	EPA 8260C
Toluene	EPA 8260B
	EPA 8260C
Total Xylenes	EPA 8260B
	EPA 8260C
Volatile Chlorinated Organics	
Benzyl chloride	EPA 8260C
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260B
	EPA 8260C
1,1,1-Trichloroethane	EPA 8260B
	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 8260B
	EPA 8260C
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
	EPA 8260C

Volatile Halocarbons	
1,1,2-Trichloroethane	EPA 8260B
	EPA 8260C
1,1-Dichloroethane	EPA 8260B
	EPA 8260C
1,1-Dichloroethene	EPA 8260B
	EPA 8260C
1,1-Dichloropropene	EPA 8260B
	EPA 8260C
1,2,3-Trichloropropane	EPA 8260B
	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260B
	EPA 8260C
1,2-Dibromoethane	EPA 8260B
	EPA 8260C
1,2-Dichloroethane	EPA 8260B
	EPA 8260C
1,2-Dichloropropane	EPA 8260B
	EPA 8260C
1,3-Dichloropropane	EPA 8260B
	EPA 8260C
2,2-Dichloropropane	EPA 8260B
	EPA 8260C
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B
	EPA 8260C
2-Chloroethylvinyl ether	EPA 8260B
	EPA 8260C

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Volatile Halocarbons	
3-Chloropropene (Allyl chloride)	EPA 8260B
	EPA 8260C
Bromochloromethane	EPA 8260B
	EPA 8260C
Bromodichloromethane	EPA 8260B
	EPA 8260C
Bromoform	EPA 8260B
	EPA 8260C
Bromomethane	EPA 8260B
	EPA 8260C
Carbon tetrachloride	EPA 8260B
	EPA 8260C
Chloroethane	EPA 8260B
	EPA 8260C
Chloroform	EPA 8260B
	EPA 8260C
Chloromethane	EPA 8260B
	EPA 8260C
cis-1,2-Dichloroethene	EPA 8260B
	EPA 8260C
cis-1,3-Dichloropropene	EPA 8260B
	EPA 8260C
Dibromochloromethane	EPA 8260B
	EPA 8260C
Dibromomethane	EPA 8260B
	EPA 8260C

Volatile Halocarbons	
Dichlorodifluoromethane	EPA 8260B
	EPA 8260C
Hexachlorobutadiene, Volatile	EPA 8260B
	EPA 8260C
Methyl iodide	EPA 8260C
Methylene chloride	EPA 8260B
	EPA 8260C
Tetrachloroethene	EPA 8260B
	EPA 8260C
trans-1,2-Dichloroethene	EPA 8260B
	EPA 8260C
trans-1,3-Dichloropropene	EPA 8260B
	EPA 8260C
trans-1,4-Dichloro-2-butene	EPA 8260B
	EPA 8260C
Trichloroethene	EPA 8260B
	EPA 8260C
Trichlorofluoromethane	EPA 8260B
	EPA 8260C
Vinyl chloride	EPA 8260B
	EPA 8260C
Volatile Organics	
1,4-Dioxane	EPA 8260B
	EPA 8260C
2-Butanone (Methylethyl ketone)	EPA 8260B

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Volatile Organics	
2-Butanone (Methylethyl ketone)	EPA 8260C
2-Hexanone	EPA 8260B
	EPA 8260C
2-Nitropropane	EPA 8260B
	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260B
	EPA 8260C
Acetone	EPA 8260B
	EPA 8260C
Acetonitrile	EPA 8260B
	EPA 8260C
Carbon Disulfide	EPA 8260B
	EPA 8260C
Cyclohexane	EPA 8260B
	EPA 8260C
Di-ethyl ether	EPA 8260B
	EPA 8260C
Ethyl Acetate	EPA 8260B
	EPA 8260C
Ethylene Glycol	EPA 8015C
Isobutyl alcohol	EPA 8260B
	EPA 8260C
Isopropanol	EPA 8260B
	EPA 8260C
Methyl acetate	EPA 8260B
	EPA 8260C

Volatile Organics	
Methyl cyclohexane	EPA 8260B
	EPA 8260C
Methyl tert-butyl ether	EPA 8260B
	EPA 8260C
n-Butanol	EPA 8260B
	EPA 8260C
o-Toluidine	EPA 8260B
	EPA 8260C
	EPA 8270D
Propionitrile	EPA 8260B
	EPA 8260C
tert-butyl alcohol	EPA 8260B
	EPA 8260C
Vinyl acetate	EPA 8260B
	EPA 8260C

Sample Preparation Methods
EPA 3050B
EPA 3060A
EPA 3541
EPA 3580A
EPA 5035A-H
EPA 5035A-L
EPA 9030B

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ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:

Miscellaneous

Lead in Dust Wipes	EPA 6010C

Sample Preparation Methods

EPA 3050B

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All approved analytes are listed below:

Acrylates	
Acrylonitrile	EPA TO-15
Ethyl acrylate	EPA TO-15
Methyl methacrylate	EPA TO-15
Chlorinated Hydrocarbons	
1,2,4-Trichlorobenzene	EPA TO-15
Hexachlorobutadiene	EPA TO-15
Miscellaneous Air	
Sulfuric Acid	40 CFR 60 Method 8
Purgeable Aromatics	
1,2,4-Trimethylbenzene	EPA TO-15
1,2-Dichlorobenzene	EPA TO-15
1,3,5-Trimethylbenzene	EPA TO-15
1,3-Dichlorobenzene	EPA TO-15
1,4-Dichlorobenzene	EPA TO-15
Benzene	EPA TO-15
Chlorobenzene	EPA TO-15
Ethyl benzene	EPA TO-15
m/p-Xylenes	EPA TO-15
o-Xylene	EPA TO-15
Styrene	EPA TO-15
Toluene	EPA TO-15
Total Xylenes	EPA TO-15
Purgeable Halocarbons	
1,1,1-Trichloroethane	EPA TO-15
Purgeable Halocarbons	
1,1,2,2-Tetrachloroethane	EPA TO-15
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA TO-15
1,1,2-Trichloroethane	EPA TO-15
1,1-Dichloroethane	EPA TO-15
1,1-Dichloroethene	EPA TO-15
1,2-Dibromoethane	EPA TO-15
1,2-Dichloroethane	EPA TO-15
1,2-Dichloropropane	EPA TO-15
Bromodichloromethane	EPA TO-15
Bromoform	EPA TO-15
Bromomethane	EPA TO-15
Carbon tetrachloride	EPA TO-15
Chloroethane	EPA TO-15
Chloroform	EPA TO-15
Chloromethane	EPA TO-15
cis-1,2-Dichloroethene	EPA TO-15
cis-1,3-Dichloropropene	EPA TO-15
Dibromochloromethane	EPA TO-15
Dichlorodifluoromethane	EPA TO-15
Methylene chloride	EPA TO-15
Tetrachloroethene	EPA TO-15
trans-1,2-Dichloroethene	EPA TO-15
trans-1,3-Dichloropropene	EPA TO-15
Trichloroethene	EPA TO-15
Trichlorofluoromethane	EPA TO-15
Vinyl chloride	EPA TO-15

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Volatile Chlorinated Organics	
Benzyl chloride	EPA TO-15
Volatile Organics	
1,2-Dichlorotetrafluoroethane	EPA TO-15
1,3-Butadiene	EPA TO-15
2,2,4-Trimethylpentane	EPA TO-15
2-Butanone (Methylethyl ketone)	EPA TO-15
4-Methyl-2-Pentanone	EPA TO-15
Acetone	EPA TO-15
Carbon Disulfide	EPA TO-15
Cyclohexane	EPA TO-15
Hexane	EPA TO-15
Methyl iodide	EPA TO-15
Methyl tert-butyl ether	EPA TO-15
n-Heptane	EPA TO-15
Vinyl acetate	EPA TO-15

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The Commonwealth of Massachusetts

Department of Environmental Protection

Division of Environmental Analysis
Senator William X. Wall Experiment Station

certifies

M-NY044

TESTAMERICA BUFFALO
10 HAZELWOOD DR
AMHERST, NY 14228-2298

Laboratory Director: **CHRISTOPHER SPENCER**

for the analysis of **NON POTABLE WATER (CHEMISTRY)**
POTABLE WATER (CHEMISTRY)

pursuant to 310 CMR 42.00

This certificate supersedes all previous Massachusetts certificates issued to this laboratory. The laboratory is regulated by and shall be responsible for being in compliance with Massachusetts regulations at 310 CMR 42.00.

This certificate is valid only when accompanied by the latest dated Certified Parameter List as issued by the Massachusetts D.E.P. Contact the Division of Environmental Analysis to verify the current certification status of the laboratory.

Certification is no guarantee of the validity of the data. This certification is subject to unannounced laboratory inspections.

Issued: **01 JUL 2012**

Expires: **30 JUN 2013**

Oscar C. Jacobs

Director, Division of Environmental Analysis

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 26 DEC 2012

M-NY044 **TESTAMERICA BUFFALO**
AMHERST NY

NON POTABLE WATER (CHEMISTRY) **Effective Date** **31 OCT 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
ALUMINUM	EPA 200.7
ANTIMONY	EPA 200.7
ANTIMONY	EPA 200.8
ARSENIC	EPA 200.7
ARSENIC	EPA 200.8
BERYLLIUM	EPA 200.7
BERYLLIUM	EPA 200.8
CADMIUM	EPA 200.7
CADMIUM	EPA 200.8
CHROMIUM	EPA 200.7
CHROMIUM	EPA 200.8
COBALT	EPA 200.7
COBALT	EPA 200.8
COPPER	EPA 200.7
COPPER	EPA 200.8
IRON	EPA 200.7
LEAD	EPA 200.7
LEAD	EPA 200.8
MANGANESE	EPA 200.7
MANGANESE	EPA 200.8
MERCURY	EPA 245.1
MOLYBDENUM	EPA 200.7
MOLYBDENUM	EPA 200.8
NICKEL	EPA 200.7
NICKEL	EPA 200.8
SELENIUM	EPA 200.7
SELENIUM	EPA 200.8
SILVER	EPA 200.7
SILVER	EPA 200.8
THALLIUM	EPA 200.7
THALLIUM	EPA 200.8
TITANIUM	EPA 200.7
VANADIUM	EPA 200.7
VANADIUM	EPA 200.8
ZINC	EPA 200.7
ZINC	EPA 200.8
SPECIFIC CONDUCTIVITY	EPA 120.1
TOTAL DISSOLVED SOLIDS	SM 2540C
HARDNESS (CACO3), TOTAL	SM 2340C
CALCIUM	EPA 200.7
MAGNESIUM	EPA 200.7
SODIUM	EPA 200.7
POTASSIUM	EPA 200.7

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 26 DEC 2012

M-NY044 TESTAMERICA BUFFALO
AMHERST NY

NON POTABLE WATER (CHEMISTRY) **Effective Date** **31 OCT 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
ALKALINITY, TOTAL	SM 2320B
ALKALINITY, TOTAL	EPA 310.2
CHLORIDE	SM 4500-CL-E
CHLORIDE	EPA 300.0
FLUORIDE	SM 4500-F-B,C
FLUORIDE	EPA 300.0
SULFATE	EPA 300.0
AMMONIA-N	EPA 350.1
NITRATE-N	EPA 353.2
KJELDAHL-N	EPA 351.2
PHOSPHORUS, TOTAL	SM 4500-P-B,E
CHEMICAL OXYGEN DEMAND	EPA 410.4
BIOCHEMICAL OXYGEN DEMAND	SM 5210B
TOTAL ORGANIC CARBON	SM 5310D
CYANIDE, TOTAL	EPA 335.4
NON-FILTERABLE RESIDUE	SM 2540D
OIL AND GREASE	EPA 1664
PHENOLICS, TOTAL	EPA 420.4
VOLATILE HALOCARBONS	EPA 624
VOLATILE AROMATICS	EPA 624
CHLORDANE	EPA 608
ALDRIN	EPA 608
DIELDRIN	EPA 608
DDD	EPA 608
DDE	EPA 608
DDT	EPA 608
HEPTACHLOR	EPA 608
HEPTACHLOR EPOXIDE	EPA 608
SVOC-ACID EXTRACTABLES	EPA 625
SVOC-BASE/NEUTRAL EXTRACTABLES	EPA 625
POLYCHLORINATED BIPHENYLS (WATEF	EPA 608

POTABLE WATER (CHEMISTRY) **Effective Date** **26 DEC 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
ANTIMONY	EPA 200.8
ARSENIC	EPA 200.8
BARIUM	EPA 200.7
BARIUM	EPA 200.8
BERYLLIUM	EPA 200.7
BERYLLIUM	EPA 200.8
CADMIUM	EPA 200.7
CADMIUM	EPA 200.8

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 26 DEC 2012

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AMHERST NY

POTABLE WATER (CHEMISTRY) Effective Date 26 DEC 2012 Expiration Date 30 JUN 2013

Analytes	Methods
CHROMIUM	EPA 200.7
CHROMIUM	EPA 200.8
COPPER	EPA 200.7
COPPER	EPA 200.8
LEAD	EPA 200.8
MERCURY	EPA 245.1
NICKEL	EPA 200.7
NICKEL	EPA 200.8
SELENIUM	EPA 200.8
THALLIUM	EPA 200.8
NITRATE-N	EPA 353.2
NITRITE-N	EPA 353.2
FLUORIDE	EPA 300.0
SODIUM	EPA 200.7
SULFATE	EPA 300.0
CYANIDE, TOTAL	EPA 335.4
TURBIDITY	EPA 180.1
CALCIUM	EPA 200.7
ALKALINITY, TOTAL	SM 2320B
TOTAL DISSOLVED SOLIDS	SM 2540C
TRIHALOMETHANES	EPA 524.2
VOLATILE ORGANIC COMPOUNDS	EPA 524.2
1,2-DIBROMOETHANE	EPA 504.1
1,2-DIBROMO-3-CHLOROPROPANE	EPA 504.1
ENDOTHALL	EPA 548.1

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. CHRISTOPHER SPENCER
TESTAMERICA BUFFALO
10 HAZELWOOD DRIVE - SUITE 106
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Dissolved Gases	
Acetylene	RSK-175
Ethane	RSK-175
Ethene (Ethylene)	RSK-175
Methane	RSK-175
Propane	RSK-175
Drinking Water Metals I	
Arsenic, Total	EPA 200.8 Rev. 5.4
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
Lead, Total	EPA 200.8 Rev. 5.4
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Mercury, Total	EPA 245.1 Rev. 3.0
Selenium, Total	EPA 200.8 Rev. 5.4
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

Drinking Water Metals II	
Aluminum, Total	EPA 200.7 Rev. 4.4
Antimony, Total	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Molybdenum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Thallium, Total	EPA 200.8 Rev. 5.4
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Drinking Water Metals III	
Boron, Total	EPA 200.7 Rev. 4.4
Calcium, Total	EPA 200.7 Rev. 4.4
Magnesium, Total	EPA 200.7 Rev. 4.4
Potassium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4
Drinking Water Miscellaneous	
Endothall	EPA 548.1
Organic Carbon, Dissolved	SM 18-21 5310D (00)
Organic Carbon, Total	SM 18-21 5310D (00)
Turbidity	EPA 180.1 Rev. 2.0
Drinking Water Non-Metals	
Alkalinity	EPA 310.2

Serial No.: 48111

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All approved analytes are listed below:

Drinking Water Non-Metals	
Alkalinity	SM 18-21 2320B (97)
Calcium Hardness	EPA 200.7 Rev. 4.4
	SM 18-21 2340B (97)
Chloride	EPA 300.0 Rev. 2.1
	SM 18-21 4110B (00)
	SM 18-21 4500-Cl- E (97)
Color	SM 18-21 2120B (01)
Cyanide	EPA 335.4 Rev. 1.0
	SM 18-21 4500-CN E (99)
Fluoride, Total	EPA 300.0 Rev. 2.1
	SM 18-21 4110B (00)
Nitrate (as N)	EPA 300.0 Rev. 2.1
	EPA 353.2 Rev. 2.0
	SM 18-21 4110B (00)
Nitrite (as N)	EPA 353.2 Rev. 2.0
Orthophosphate (as P)	SM 18-21 4500-P E
Solids, Total Dissolved	SM 18-21 2540C (97)
Specific Conductance	EPA 120.1 Rev. 1982
Sulfate (as SO4)	ASTM D516-90 02 & 07
	EPA 300.0 Rev. 2.1
	SM 18-21 4110B (00)
Drinking Water Trihalomethanes	
Bromodichloromethane	EPA 524.2
Bromoform	EPA 524.2
Chloroform	EPA 524.2

Drinking Water Trihalomethanes	
Dibromochloromethane	EPA 524.2
Total Trihalomethanes	EPA 524.2
Fuel Additives	
Methyl tert-butyl ether	EPA 524.2
Naphthalene	EPA 524.2
Microextractibles	
1,2-Dibromo-3-chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Volatile Aromatics	
1,2,3-Trichlorobenzene	EPA 524.2
1,2,4-Trichlorobenzene	EPA 524.2
1,2,4-Trimethylbenzene	EPA 524.2
1,2-Dichlorobenzene	EPA 524.2
1,3,5-Trimethylbenzene	EPA 524.2
1,3-Dichlorobenzene	EPA 524.2
1,4-Dichlorobenzene	EPA 524.2
2-Chlorotoluene	EPA 524.2
4-Chlorotoluene	EPA 524.2
Benzene	EPA 524.2
Bromobenzene	EPA 524.2
Chlorobenzene	EPA 524.2
Ethyl benzene	EPA 524.2
Hexachlorobutadiene	EPA 524.2
Isopropylbenzene	EPA 524.2

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All approved analytes are listed below:

Volatile Aromatics	
n-Butylbenzene	EPA 524.2
n-Propylbenzene	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 524.2
sec-Butylbenzene	EPA 524.2
Styrene	EPA 524.2
tert-Butylbenzene	EPA 524.2
Toluene	EPA 524.2
Total Xylenes	EPA 524.2
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 524.2
1,1,1-Trichloroethane	EPA 524.2
1,1,2,2-Tetrachloroethane	EPA 524.2
1,1,2-Trichloroethane	EPA 524.2
1,1-Dichloroethane	EPA 524.2
1,1-Dichloroethene	EPA 524.2
1,1-Dichloropropene	EPA 524.2
1,2,3-Trichloropropane	EPA 524.2
1,2-Dichloroethane	EPA 524.2
1,2-Dichloropropane	EPA 524.2
1,3-Dichloropropane	EPA 524.2
2,2-Dichloropropane	EPA 524.2
Bromochloromethane	EPA 524.2
Bromomethane	EPA 524.2
Carbon tetrachloride	EPA 524.2
Chloroethane	EPA 524.2

Volatile Halocarbons	
Chloromethane	EPA 524.2
cis-1,2-Dichloroethene	EPA 524.2
cis-1,3-Dichloropropene	EPA 524.2
Dibromomethane	EPA 524.2
Dichlorodifluoromethane	EPA 524.2
Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 524.2
trans-1,2-Dichloroethene	EPA 524.2
trans-1,3-Dichloropropene	EPA 524.2
Trichloroethene	EPA 524.2
Trichlorofluoromethane	EPA 524.2
Vinyl chloride	EPA 524.2

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All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 624
	EPA 8260B
Acrylonitrile	EPA 624
	EPA 8260B
Ethyl methacrylate	EPA 8260B
Methyl acrylonitrile	EPA 8260B
Methyl methacrylate	EPA 8260B
Amines	
1,4-Phenylenediamine	EPA 8270C
	EPA 8270D
1-Naphthylamine	EPA 8270C
	EPA 8270D
2-Naphthylamine	EPA 8270C
	EPA 8270D
2-Nitroaniline	EPA 8270C
	EPA 8270D
3-Nitroaniline	EPA 8270C
	EPA 8270D
4-Chloroaniline	EPA 8270C
	EPA 8270D
4-Nitroaniline	EPA 8270C
	EPA 8270D
5-Nitro-o-toluidine	EPA 8270C
	EPA 8270D
Aniline	EPA 8270C

Amines	
Aniline	EPA 8270D
Carbazole	EPA 8270C
	EPA 8270D
Diphenylamine	EPA 8270C
	EPA 8270D
Methapyrilene	EPA 8270C
	EPA 8270D
Pronamide	EPA 8270C
	EPA 8270D
Propionitrile	EPA 8260B
Pyridine	EPA 625
	EPA 8270C
	EPA 8270D
Benzidines	
3,3'-Dichlorobenzidine	EPA 625
	EPA 8270C
	EPA 8270D
3,3'-Dimethylbenzidine	EPA 8270C
	EPA 8270D
Benzidine	EPA 625
	EPA 8270C
	EPA 8270D
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 608
	EPA 8081A

Serial No.: 49101

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All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081B
4,4'-DDE	EPA 608
	EPA 8081A
	EPA 8081B
4,4'-DDT	EPA 608
	EPA 8081A
	EPA 8081B
Aldrin	EPA 608
	EPA 8081A
	EPA 8081B
alpha-BHC	EPA 608
	EPA 8081A
	EPA 8081B
alpha-Chlordane	EPA 8081A
	EPA 8081B
beta-BHC	EPA 608
	EPA 8081A
	EPA 8081B
Chlordane Total	EPA 608
	EPA 8081A
	EPA 8081B
Chlorobenzilate	EPA 8270C
	EPA 8270D
delta-BHC	EPA 608
	EPA 8081A
	EPA 8081B

Chlorinated Hydrocarbon Pesticides	
Diallate	EPA 8270C
	EPA 8270D
Dieldrin	EPA 608
	EPA 8081A
	EPA 8081B
Endosulfan I	EPA 608
	EPA 8081A
	EPA 8081B
Endosulfan II	EPA 608
	EPA 8081A
	EPA 8081B
Endosulfan sulfate	EPA 608
	EPA 8081A
	EPA 8081B
Endrin	EPA 608
	EPA 8081A
	EPA 8081B
Endrin aldehyde	EPA 608
	EPA 8081A
	EPA 8081B
Endrin Ketone	EPA 8081A
	EPA 8081B
gamma-Chlordane	EPA 8081A
	EPA 8081B
Heptachlor	EPA 608
	EPA 8081A

Serial No.: 49101

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All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides		**Chlorinated Hydrocarbons**	
Heptachlor	EPA 8081B	1,2,4,5-Tetrachlorobenzene	EPA 8270D
Heptachlor epoxide	EPA 608	1,2,4-Trichlorobenzene	EPA 625
	EPA 8081A		EPA 8270C
	EPA 8081B		EPA 8270D
Isodrin	EPA 8270C	2-Chloronaphthalene	EPA 625
	EPA 8270D		EPA 8270C
Kepone	EPA 8270C		EPA 8270D
	EPA 8270D	Hexachlorobenzene	EPA 625
Lindane	EPA 608		EPA 8270C
	EPA 8081A		EPA 8270D
	EPA 8081B	Hexachlorobutadiene	EPA 625
Methoxychlor	EPA 608		EPA 8270C
	EPA 8081A		EPA 8270D
	EPA 8081B	Hexachlorocyclopentadiene	EPA 625
Mirex	EPA 8081A		EPA 8270C
	EPA 8081B		EPA 8270D
	SM 18-20 6630C	Hexachloroethane	EPA 625
PCNB	EPA 8270C		EPA 8270C
	EPA 8270D		EPA 8270D
Toxaphene	EPA 608	Hexachloropropene	EPA 8270C
	EPA 8081A		EPA 8270D
	EPA 8081B	Pentachlorobenzene	EPA 8270C
			EPA 8270D
Chlorinated Hydrocarbons		**Chlorophenoxy Acid Pesticides**	
1,2,3-Trichlorobenzene	EPA 8260B	2,4,5-T	EPA 8151A
1,2,4,5-Tetrachlorobenzene	EPA 8270C		

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Chlorophenoxy Acid Pesticides	
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dichloroprop	EPA 8151A
Dinoseb	EPA 8151A
Demand	
Biochemical Oxygen Demand	SM 18-21 5210B (01)
Carbonaceous BOD	SM 18-21 5210B (01)
Chemical Oxygen Demand	EPA 410.4 Rev. 2.0
	HACH 8000
Dissolved Gases	
Acetylene	RSK-175
Ethane	RSK-175
Ethene (Ethylene)	RSK-175
Methane	RSK-175
Propane	RSK-175
Fuel Oxygenates	
Di-isopropyl ether	EPA 8260B
Ethanol	EPA 8015B
Methyl tert-butyl ether	EPA 8021B
	EPA 8260B
tert-amyl methyl ether (TAME)	EPA 8260B
tert-butyl alcohol	EPA 8015B
	EPA 8260B
Fuel Oxygenates	
tert-butyl ethyl ether (ETBE)	EPA 8260B
Haloethers	
4-Bromophenylphenyl ether	EPA 625
	EPA 8270C
	EPA 8270D
4-Chlorophenylphenyl ether	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-chloroethyl)ether	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-chloroisopropyl) ether	EPA 625
	EPA 8270C
	EPA 8270D
Mineral	
Alkalinity	EPA 310.2
	SM 18-21 2320B (97)
Calcium Hardness	EPA 200.7 Rev. 4.4
Chloride	EPA 300.0 Rev. 2.1
	EPA 9056A
	SM 18-21 4110B (00)
	SM 18-21 4500-Cl- E.(97)

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Mineral	
Fluoride, Total	EPA 300.0 Rev. 2.1
	EPA 9056A
	SM 18-21 4110B (00)
	SM 18-21 4500-F C (97)
Hardness, Total	SM 18-21 2340B (97)
	SM 18-21 2340C (97)
Sulfate (as SO4)	ASTM D516-90 02 & 07
	EPA 300.0 Rev. 2.1
	EPA 9056A
	SM 18-21 4110B (00)
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270C
	EPA 8270D
1,3-Dinitrobenzene	EPA 8270C
	EPA 8270D
1,4-Naphthoquinone	EPA 8270C
	EPA 8270D
2,4-Dinitrotoluene	EPA 625
	EPA 8270C
	EPA 8270D
2,6-Dinitrotoluene	EPA 625
	EPA 8270C
	EPA 8270D
Isophorone	EPA 625
	EPA 8270C

Nitroaromatics and Isophorone	
Isophorone	EPA 8270D
Nitrobenzene	EPA 625
	EPA 8270C
	EPA 8270D
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270C
	EPA 8270D
N-Nitrosodimethylamine	EPA 625
	EPA 8270C
	EPA 8270D
N-Nitrosodi-n-butylamine	EPA 8270C
	EPA 8270D
N-Nitrosodi-n-propylamine	EPA 625
	EPA 8270C
	EPA 8270D
N-Nitrosodiphenylamine	EPA 625
	EPA 8270C
	EPA 8270D
N-nitrosopiperidine	EPA 8270C
	EPA 8270D
N-Nitrosopyrrolidine	EPA 8270C
	EPA 8270D
Nutrient	
Ammonia (as N)	EPA 350.1 Rev. 2.0
Kjeldahl Nitrogen, Total	EPA 351.2 Rev. 2.0

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013
Revised April 29, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. CHRISTOPHER SPENCER
TESTAMERICA BUFFALO
10 HAZELWOOD DRIVE - SUITE 106
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Nutrient	
Nitrate (as N)	EPA 300.0 Rev. 2.1
	EPA 353.2 Rev. 2.0
	EPA 9056A
	SM 18-21 4110B (00)
	SM 18-21 4500-NO3 F (00)
Nitrite (as N)	EPA 353.2 Rev. 2.0
	SM 18-21 4500-NO3 F (00)
Orthophosphate (as P)	SM 18-21 4500-P E
Phosphorus, Total	SM 18-21 4500-P E
Organophosphate Pesticides	
Atrazine	EPA 8270C
	EPA 8270D
Dimethoate	EPA 8270C
	EPA 8270D
Disulfoton	EPA 8270C
	EPA 8270D
Famphur	EPA 8270C
	EPA 8270D
Parathion ethyl	EPA 8270C
	EPA 8270D
Parathion methyl	EPA 8270C
	EPA 8270D
Phorate	EPA 8270C
	EPA 8270D
Simazine	EPA 8270C

Organophosphate Pesticides	
Simazine	EPA 8270D
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015B
Gasoline Range Organics	EPA 8015B
Phthalate Esters	
Benzyl butyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Diethyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Dimethyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Di-n-butyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Di-n-octyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D

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Polynuclear Aromatics	
Benzo(k)fluoranthene	EPA 8270C
	EPA 8270D
Chrysene	EPA 625
	EPA 8270C
	EPA 8270D
Dibenzo(a,h)anthracene	EPA 625
	EPA 8270C
	EPA 8270D
Fluoranthene	EPA 625
	EPA 8270C
	EPA 8270D
Fluorene	EPA 625
	EPA 8270C
	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 625
	EPA 8270C
	EPA 8270D
Naphthalene	EPA 625
	EPA 8270C
	EPA 8270D
Phenanthrene	EPA 625
	EPA 8270C
	EPA 8270D
Pyrene	EPA 625
	EPA 8270C
	EPA 8270D

Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270C
	EPA 8270D
2,4,5-Trichlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4,6-Trichlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4-Dichlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4-Dimethylphenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4-Dinitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
2,6-Dichlorophenol	EPA 8270C
	EPA 8270D
2-Chlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
2-Methylphenol	EPA 8270C

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Priority Pollutant Phenols	
2-Methylphenol	EPA 8270D
2-Nitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
3-Methylphenol	EPA 8270C
	EPA 8270D
4-Chloro-3-methylphenol	EPA 625
	EPA 8270C
	EPA 8270D
4-Methylphenol	EPA 8270C
	EPA 8270D
4-Nitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
Cresols, Total	EPA 625
	EPA 8270C
	EPA 8270D
Pentachlorophenol	EPA 625
	EPA 8151A
	EPA 8270C
	EPA 8270D
Phenol	EPA 625
	EPA 8270C
	EPA 8270D

Residue	
Settleable Solids	SM 18-21 2540 F (97)
Solids, Total	SM 18-21 2540B (97)
Solids, Total Dissolved	SM 18-21 2540C (97)
Solids, Total Suspended	SM 18-21 2540D (97)
Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270C
	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
2-Methylnaphthalene	EPA 8270C
	EPA 8270D
4-Amino biphenyl	EPA 8270C
	EPA 8270D
Acetophenone	EPA 8270C
	EPA 8270D
Benzaldehyde	EPA 8270C
	EPA 8270D
Benzoic Acid	EPA 8270C
	EPA 8270D
Benzyl alcohol	EPA 8270C
	EPA 8270D

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Semi-Volatile Organics	
Caprolactam	EPA 8270C
	EPA 8270D
Dibenzofuran	EPA 8270C
	EPA 8270D
Ethyl methanesulfonate	EPA 8270C
	EPA 8270D
Isosafrole	EPA 8270C
	EPA 8270D
Methyl methanesulfonate	EPA 8270C
	EPA 8270D
O,O,O-Triethyl phosphorothioate	EPA 8270C
	EPA 8270D
p-Dimethylaminoazobenzene	EPA 8270C
	EPA 8270D
Phenacetin	EPA 8270C
	EPA 8270D
Safrole	EPA 8270C
	EPA 8270D
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260B
1,2,4-Trimethylbenzene	EPA 8021B
	EPA 8260B
1,2-Dichlorobenzene	EPA 624
	EPA 8260B
1,3,5-Trimethylbenzene	EPA 8021B

Volatile Aromatics	
1,3,5-Trimethylbenzene	EPA 8260B
1,3-Dichlorobenzene	EPA 624
	EPA 8260B
1,4-Dichlorobenzene	EPA 624
	EPA 8260B
Benzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Chlorobenzene	EPA 624
	EPA 8260B
Ethyl benzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Isopropylbenzene	EPA 8021B
	EPA 8260B
Naphthalene, Volatile	EPA 8260B
n-Butylbenzene	EPA 8021B
	EPA 8260B
n-Propylbenzene	EPA 8021B
	EPA 8260B
p-Isopropyltoluene (P-Cymene)	EPA 8021B
	EPA 8260B
sec-Butylbenzene	EPA 8021B
	EPA 8260B

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Volatile Aromatics		**Volatile Halocarbons**	
Styrene	EPA 624	1,1-Dichloroethene	EPA 8260B
	EPA 8260B	1,1-Dichloropropene	EPA 8260B
tert-Butylbenzene	EPA 8260B	1,2,3-Trichloropropane	EPA 8260B
Toluene	EPA 602	1,2-Dibromo-3-chloropropane	EPA 8011
	EPA 624		EPA 8260B
	EPA 8021B	1,2-Dibromoethane	EPA 8011
	EPA 8260B		EPA 8260B
Total Xylenes	EPA 602	1,2-Dichloroethane	EPA 624
	EPA 624		EPA 8260B
	EPA 8021B	1,2-Dichloropropane	EPA 624
	EPA 8260B		EPA 8260B
Volatile Chlorinated Organics		1,3-Dichloropropane	EPA 8260B
Epichlorohydrin	EPA 8260B	2,2-Dichloropropane	EPA 8260B
		2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B
Volatile Halocarbons		2-Chloroethylvinyl ether	EPA 624
1,1,1,2-Tetrachloroethane	EPA 8260B		EPA 8260B
1,1,1-Trichloroethane	EPA 624	3-Chloropropene (Allyl chloride)	EPA 8260B
	EPA 8260B	Bromochloromethane	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 624	Bromodichloromethane	EPA 624
	EPA 8260B		EPA 8260B
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B	Bromoform	EPA 624
1,1,2-Trichloroethane	EPA 624		EPA 8260B
	EPA 8260B	Bromomethane	EPA 624
1,1-Dichloroethane	EPA 624		EPA 8260B
	EPA 8260B	Carbon tetrachloride	EPA 624
1,1-Dichloroethene	EPA 624		EPA 8260B

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Volatile Halocarbons	
Chloroethane	EPA 624
	EPA 8260B
Chloroform	EPA 624
	EPA 8260B
Chloromethane	EPA 624
	EPA 8260B
cis-1,2-Dichloroethene	EPA 624
	EPA 8260B
cis-1,3-Dichloropropene	EPA 624
	EPA 8260B
cis-1,4-Dichloro-2-butene	EPA 8260B
Dibromochloromethane	EPA 624
	EPA 8260B
Dibromomethane	EPA 8260B
Dichlorodifluoromethane	EPA 624
	EPA 8260B
Hexachlorobutadiene, Volatile	EPA 8260B
Methyl iodide	EPA 8260B
Methylene chloride	EPA 624
	EPA 8260B
Tetrachloroethene	EPA 624
	EPA 8260B
trans-1,2-Dichloroethene	EPA 624
	EPA 8260B
trans-1,3-Dichloropropene	EPA 624
	EPA 8260B

Volatile Halocarbons	
trans-1,4-Dichloro-2-butene	EPA 8260B
Trichloroethene	EPA 624
	EPA 8260B
Trichlorofluoromethane	EPA 624
	EPA 8260B
Vinyl chloride	EPA 624
	EPA 8260B
Volatiles Organics	
1,4-Dioxane	EPA 8260B
2-Butanone (Methylethyl ketone)	EPA 8260B
2-Hexanone	EPA 8260B
4-Methyl-2-Pentanone	EPA 8260B
Acetone	EPA 8260B
Acetonitrile	EPA 8260B
Carbon Disulfide	EPA 8260B
Cyclohexane	EPA 8260B
Ethylene Glycol	EPA 8015B
Isobutyl alcohol	EPA 8015B
	EPA 8015C
	EPA 8260B
Methyl acetate	EPA 8260B
Methyl cyclohexane	EPA 8260B
o-Toluidine	EPA 8270C
Vinyl acetate	EPA 8260B

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Wastewater Metals I		Wastewater Metals I	
Barium, Total	EPA 200.7 Rev. 4.4	Copper, Total	EPA 6020A
	EPA 200.8 Rev. 5.4	Iron, Total	EPA 200.7 Rev. 4.4
	EPA 6010B		EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020	Lead, Total	EPA 200.7 Rev. 4.4
	EPA 6020A		EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4		EPA 6010B
	EPA 200.8 Rev. 5.4		EPA 6010C
	EPA 6010B		EPA 6020
	EPA 6010C		EPA 6020A
	EPA 6020	Magnesium, Total	EPA 200.7 Rev. 4.4
	EPA 6020A		EPA 6010B
Calcium, Total	EPA 200.7 Rev. 4.4		EPA 6010C
	EPA 6010B	Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 6010C		EPA 200.8 Rev. 5.4
Chromium, Total	EPA 200.7 Rev. 4.4		EPA 6010B
	EPA 200.8 Rev. 5.4		EPA 6010C
	EPA 6010B		EPA 6020
	EPA 6010C		EPA 6020A
	EPA 6020	Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 6020A		EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.7 Rev. 4.4		EPA 6010B
	EPA 200.8 Rev. 5.4		EPA 6010C
	EPA 6010B		EPA 6020
	EPA 6010C		EPA 6020A
	EPA 6020	Potassium, Total	EPA 200.7 Rev. 4.4

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Wastewater Metals I		**Wastewater Metals II**	
Potassium, Total	EPA 6010B	Antimony, Total	EPA 6020A
	EPA 6010C	Arsenic, Total	EPA 200.7 Rev. 4.4
Silver, Total	EPA 200.7 Rev. 4.4		EPA 200.8 Rev. 5.4
	EPA 200.8 Rev. 5.4		EPA 6010B
	EPA 6010B		EPA 6010C
	EPA 6010C		EPA 6020
	EPA 6020		EPA 6020A
	EPA 6020A	Beryllium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4		EPA 200.8 Rev. 5.4
	EPA 6010B		EPA 6010B
	EPA 6010C		EPA 6010C
Strontium, Total	EPA 200.7 Rev. 4.4		EPA 6020
	EPA 200.8 Rev. 5.4		EPA 6020A
	EPA 6010B	Chromium VI	EPA 7196A
	EPA 6020		SM 18-19 3500-Cr D
	EPA 6020A		SM 20-21 3500-Cr B (01)
Wastewater Metals II		Mercury, Total	EPA 245.1 Rev. 3.0
Aluminum, Total	EPA 200.7 Rev. 4.4		EPA 7470A
	EPA 6010B	Selenium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C		EPA 200.8 Rev. 5.4
Antimony, Total	EPA 200.7 Rev. 4.4		EPA 6010B
	EPA 200.8 Rev. 5.4		EPA 6010C
	EPA 6010B		EPA 6020
	EPA 6010C		EPA 6020A
	EPA 6020	Vanadium, Total	EPA 200.7 Rev. 4.4
			EPA 200.8 Rev. 5.4

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Wastewater Metals II		**Wastewater Metals III**	
Vanadium, Total	EPA 6010B	Thallium, Total	EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020		EPA 6020
	EPA 6020A		EPA 6020A
Zinc, Total	EPA 200.7 Rev. 4.4	Tin, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4		EPA 6010B
	EPA 6010B		EPA 6010C
	EPA 6010C	Titanium, Total	EPA 200.7 Rev. 4.4
	EPA 6020		EPA 6010B
	EPA 6020A		EPA 6010C
Wastewater Metals III		**Wastewater Miscellaneous**	
Cobalt, Total	EPA 200.7 Rev. 4.4	Boron, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4		EPA 6010B
	EPA 6010B		EPA 6010C
	EPA 6010C	Bromide	EPA 300.0 Rev. 2.1
	EPA 6020		EPA 9056A
	EPA 6020A		SM 18-21 4110B (00)
Molybdenum, Total	EPA 200.7 Rev. 4.4	Color	SM 18-21 2120B (01)
	EPA 200.8 Rev. 5.4	Cyanide, Total	EPA 335.4 Rev. 1.0
	EPA 6010B		EPA 9012B
	EPA 6010C		LACHAT 10-204-00-1-X
	EPA 6020		SM 18-21 4500-CN E (99)
	EPA 6020A		SM 18-21 4500-CN G (99)
Thallium, Total	EPA 200.7 Rev. 4.4	Oil and Grease Total Recoverable (HEM	EPA 1664A
	EPA 200.8 Rev. 5.4		EPA 9070 (Solvent:Hexane)

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Wastewater Miscellaneous

Organic Carbon, Total	EPA 9060
	SM 18-21 5310D (00)
Phenols	EPA 420.4 Rev. 1.0
	EPA 9065
	EPA 9066
Specific Conductance	EPA 120.1 Rev. 1982
	EPA 9050A
	SM 18-21 2510B (97)
Sulfide (as S)	SM 18-21 4500-S D (00)
	SM 19-21 4500-S F (00)
Surfactant (MBAS)	SM 18-21 5540C (00)
Total Organic Halides	EPA 9020B
Total Petroleum Hydrocarbons	EPA 1664A
Turbidity	EPA 180.1 Rev. 2.0

Sample Preparation Methods

EPA 200.2
EPA 3005A
EPA 3010A
EPA 3020A
EPA 3510C
EPA 3520C
EPA 5030B
SM 18-21 4500-P b.5

Serial No.: 49101

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WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. CHRISTOPHER SPENCER
TESTAMERICA BUFFALO
10 HAZELWOOD DRIVE - SUITE 106
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8260B
Acrylonitrile	EPA 8260B
Ethyl methacrylate	EPA 8260B
Methyl acrylonitrile	EPA 8260B
Methyl methacrylate	EPA 8260B
Amines	
1,2-Diphenylhydrazine	EPA 8270C
	EPA 8270D
1,4-Phenylenediamine	EPA 8270C
	EPA 8270D
1-Naphthylamine	EPA 8270C
	EPA 8270D
2-Naphthylamine	EPA 8270C
	EPA 8270D
2-Nitroaniline	EPA 8270C
	EPA 8270D
3-Nitroaniline	EPA 8270C
	EPA 8270D
4-Chloroaniline	EPA 8270C
	EPA 8270D
4-Nitroaniline	EPA 8270C
	EPA 8270D
5-Nitro-o-toluidine	EPA 8270C
	EPA 8270D
Aniline	EPA 8270C

Amines	
Aniline	EPA 8270D
Carbazole	EPA 8270C
	EPA 8270D
Diphenylamine	EPA 8270C
	EPA 8270D
Methapyrilene	EPA 8270C
	EPA 8270D
Pronamide	EPA 8270C
	EPA 8270D
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270C
	EPA 8270D
3,3'-Dimethylbenzidine	EPA 8270C
	EPA 8270D
Benzidine	EPA 8270C
	EPA 8270D
Characteristic Testing	
Corrosivity	EPA 9040C
	EPA 9045D
Free Liquids	EPA 9095B
Ignitability	EPA 1010A
Reactivity	SW-846 Ch7 Sec. 7.3
Synthetic Precipitation Leaching Proc.	EPA 1312
TCLP	EPA 1311

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Chlorinated Hydrocarbon Pesticides		Chlorinated Hydrocarbon Pesticides	
2,4'-DDD (Mitotane)	EPA 8081A	Dieldrin	EPA 8081A
	EPA 8081B		EPA 8081B
4,4'-DDD	EPA 8081A	Endosulfan I	EPA 8081A
	EPA 8081B		EPA 8081B
4,4'-DDE	EPA 8081A	Endosulfan II	EPA 8081A
	EPA 8081B		EPA 8081B
4,4'-DDT	EPA 8081A	Endosulfan sulfate	EPA 8081A
	EPA 8081B		EPA 8081B
Aldrin	EPA 8081A	Endrin	EPA 8081A
	EPA 8081B		EPA 8081B
alpha-BHC	EPA 8081A	Endrin aldehyde	EPA 8081A
	EPA 8081B		EPA 8081B
alpha-Chlordane	EPA 8081A	Endrin Ketone	EPA 8081A
	EPA 8081B		EPA 8081B
Atrazine	EPA 8270C	gamma-Chlordane	EPA 8081A
	EPA 8270D		EPA 8081B
beta-BHC	EPA 8081A	Heptachlor	EPA 8081A
	EPA 8081B		EPA 8081B
Chlordane Total	EPA 8081A	Heptachlor epoxide	EPA 8081A
	EPA 8081B		EPA 8081B
Chlorobenzilate	EPA 8270C	Kepone	EPA 8270C
	EPA 8270D		EPA 8270D
delta-BHC	EPA 8081A	Lindane	EPA 8081A
	EPA 8081B		EPA 8081B
Diallate	EPA 8270C	Methoxychlor	EPA 8081A
	EPA 8270D		EPA 8081B

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Chlorinated Hydrocarbon Pesticides	
Pentachloronitrobenzene	EPA 8270C
	EPA 8270D
Toxaphene	EPA 8081A
	EPA 8081B
Chlorinated Hydrocarbons	
1,2,4,5-Tetrachlorobenzene	EPA 8270C
	EPA 8270D
1,2,4-Trichlorobenzene	EPA 8270C
	EPA 8270D
2-Chloronaphthalene	EPA 8270C
	EPA 8270D
Hexachlorobenzene	EPA 8270C
	EPA 8270D
Hexachlorobutadiene	EPA 8270C
	EPA 8270D
Hexachlorocyclopentadiene	EPA 8270C
	EPA 8270D
Hexachloroethane	EPA 8270C
	EPA 8270D
Hexachlorophene	EPA 8270C
	EPA 8270D
Hexachloropropene	EPA 8270C
	EPA 8270D
Pentachlorobenzene	EPA 8270C
	EPA 8270D

Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dichloroprop	EPA 8151A
Dinoseb	EPA 8151A
Pentachlorophenol	EPA 8151A
Haloethers	
4-Bromophenylphenyl ether	EPA 8270C
	EPA 8270D
4-Chlorophenylphenyl ether	EPA 8270C
	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 8270C
	EPA 8270D
Bis(2-chloroethyl)ether	EPA 8270C
	EPA 8270D
Bis(2-chloroisopropyl) ether	EPA 8270C
	EPA 8270D
Metals I	
Barium, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Cadmium, Total	EPA 6010B
	EPA 6010C

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Metals I		**Metals I**	
Cadmium, Total	EPA 6020	Nickel, Total	EPA 6020
	EPA 6020A		EPA 6020A
Calcium, Total	EPA 6010B	Potassium, Total	EPA 6010B
	EPA 6010C		EPA 6010C
Chromium, Total	EPA 6010B	Silver, Total	EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020		EPA 6020
	EPA 6020A		EPA 6020A
Copper, Total	EPA 6010B	Sodium, Total	EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020	Strontium, Total	EPA 6010B
	EPA 6020A	**Metals II**	
Iron, Total	EPA 6010B	Aluminum, Total	EPA 6010B
	EPA 6010C		EPA 6010C
Lead, Total	EPA 6010B	Antimony, Total	EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020		EPA 6020
	EPA 6020A		EPA 6020A
Magnesium, Total	EPA 6010B	Arsenic, Total	EPA 6010B
	EPA 6010C		EPA 6010C
Manganese, Total	EPA 6010B		EPA 6020
	EPA 6010C		EPA 6020A
	EPA 6020	Beryllium, Total	EPA 6010B
	EPA 6020A		EPA 6010C
Nickel, Total	EPA 6010B		EPA 6020
	EPA 6010C		

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Metals II	
Beryllium, Total	EPA 6020A
Lithium, Total	EPA 6010B
	EPA 6010C
Mercury, Total	EPA 7471A
	EPA 7471B
Selenium, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Vanadium, Total	EPA 6010B
	EPA 6010C
Zinc, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Metals III	
Cobalt, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Molybdenum, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Thallium, Total	EPA 6010B

Metals III	
Thallium, Total	EPA 6010C
	EPA 6020
	EPA 6020A
Tin, Total	EPA 6010B
	EPA 6010C
Titanium, Total	EPA 6010B
	EPA 6010C
Minerals	
Bromide	EPA 9056A
Chloride	EPA 9056A
	EPA 9251
Fluoride, Total	EPA 9056A
Sulfate (as SO4)	EPA 9038
	EPA 9056A
Miscellaneous	
Boron, Total	EPA 6010B
	EPA 6010C
Cyanide, Total	EPA 9012B
Phenols	EPA 9066
Specific Conductance	EPA 9050A
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270C
	EPA 8270D
1,4-Dinitrobenzene	EPA 8270C

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Nitroaromatics and Isophorone	
1,4-Dinitrobenzene	EPA 8270D
1,4-Naphthoquinone	EPA 8270C
	EPA 8270D
2,4-Dinitrotoluene	EPA 8270C
	EPA 8270D
2,6-Dinitrotoluene	EPA 8270C
	EPA 8270D
4-Dimethylaminoazobenzene	EPA 8270C
	EPA 8270D
Hydroquinone	EPA 8270C
	EPA 8270D
Isophorone	EPA 8270C
	EPA 8270D
Nitrobenzene	EPA 8270C
	EPA 8270D
Pyridine	EPA 8270C
	EPA 8270D
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270C
	EPA 8270D
N-Nitrosodimethylamine	EPA 8270C
	EPA 8270D
N-Nitrosodi-n-butylamine	EPA 8270C
	EPA 8270D
N-Nitrosodi-n-propylamine	EPA 8270C

Nitrosoamines	
N-Nitrosodi-n-propylamine	EPA 8270D
N-Nitrosodiphenylamine	EPA 8270C
	EPA 8270D
N-nitrosomethylethylamine	EPA 8270C
	EPA 8270D
N-nitrosomorpholine	EPA 8270C
	EPA 8270D
N-nitrosopiperidine	EPA 8270C
	EPA 8270D
N-Nitrosopyrrolidine	EPA 8270C
	EPA 8270D
Nutrients	
Nitrate (as N)	EPA 9056A
Organophosphate Pesticides	
Dimethoate	EPA 8270C
	EPA 8270D
Disulfoton	EPA 8270C
	EPA 8270D
Famphur	EPA 8270C
	EPA 8270D
Parathion ethyl	EPA 8270C
	EPA 8270D
Parathion methyl	EPA 8270C
	EPA 8270D
Phorate	EPA 8270C

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Organophosphate Pesticides	
Phorate	EPA 8270D
Sulfotepp	EPA 8270C
	EPA 8270D
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015B
	EPA 8015C
Gasoline Range Organics	EPA 8015B
	EPA 8015C
Phthalate Esters	
Benzyl butyl phthalate	EPA 8270C
	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 8270C
	EPA 8270D
Diethyl phthalate	EPA 8270C
	EPA 8270D
Dimethyl phthalate	EPA 8270C
	EPA 8270D
Di-n-butyl phthalate	EPA 8270C
	EPA 8270D
Di-n-octyl phthalate	EPA 8270C
	EPA 8270D
Polychlorinated Biphenyls	
PCB-1016	EPA 8082
	EPA 8082A

Polychlorinated Biphenyls	
PCB-1221	EPA 8082
	EPA 8082A
PCB-1232	EPA 8082
	EPA 8082A
PCB-1242	EPA 8082
	EPA 8082A
PCB-1248	EPA 8082
	EPA 8082A
PCB-1254	EPA 8082
	EPA 8082A
PCB-1260	EPA 8082
	EPA 8082A
PCB-1262	EPA 8082
PCB-1268	EPA 8082
Polynuclear Aromatic Hydrocarbons	
3-Methylcholanthrene	EPA 8270C
	EPA 8270D
7,12-Dimethylbenzyl (a) anthracene	EPA 8270C
	EPA 8270D
Acenaphthene	EPA 8270C
	EPA 8270D
Acenaphthylene	EPA 8270C
	EPA 8270D
Anthracene	EPA 8270C
	EPA 8270D

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Polynuclear Aromatic Hydrocarbons	
Benzo(a)anthracene	EPA 8270C
	EPA 8270D
Benzo(a)pyrene	EPA 8270C
	EPA 8270D
Benzo(b)fluoranthene	EPA 8270C
	EPA 8270D
Benzo(ghi)perylene	EPA 8270C
	EPA 8270D
Benzo(k)fluoranthene	EPA 8270C
	EPA 8270D
Chrysene	EPA 8270C
	EPA 8270D
Dibenzo(a,e)pyrene	EPA 8270C
	EPA 8270D
Dibenzo(a,h)anthracene	EPA 8270C
	EPA 8270D
Fluoranthene	EPA 8270C
	EPA 8270D
Fluorene	EPA 8270C
	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 8270C
	EPA 8270D
Naphthalene	EPA 8270C
	EPA 8270D
Phenanthrene	EPA 8270C
	EPA 8270D
Pyrene	EPA 8270C
	EPA 8270D
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270C
	EPA 8270D
2,4,5-Trichlorophenol	EPA 8270C
	EPA 8270D
2,4,6-Trichlorophenol	EPA 8270C
	EPA 8270D
2,4-Dichlorophenol	EPA 8270C
	EPA 8270D
2,4-Dimethylphenol	EPA 8270C
	EPA 8270D
2,4-Dinitrophenol	EPA 8270C
	EPA 8270D
2,6-Dichlorophenol	EPA 8270C
	EPA 8270D
2-Chlorophenol	EPA 8270C
	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 8270C
	EPA 8270D
2-Methylphenol	EPA 8270C
	EPA 8270D
2-Nitrophenol	EPA 8270C
	EPA 8270D

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Priority Pollutant Phenols	
3-Methylphenol	EPA 8270C
	EPA 8270D
4-Chloro-3-methylphenol	EPA 8270C
	EPA 8270D
4-Methylphenol	EPA 8270C
	EPA 8270D
4-Nitrophenol	EPA 8270C
	EPA 8270D
Pentachlorophenol	EPA 8270C
	EPA 8270D
Phenol	EPA 8270C
	EPA 8270D
Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270C
	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
2-Methylnaphthalene	EPA 8270C
	EPA 8270D
4-Amino biphenyl	EPA 8270C
	EPA 8270D

Semi-Volatile Organics	
Acetophenone	EPA 8270C
	EPA 8270D
Benzaldehyde	EPA 8270C
	EPA 8270D
Benzoic Acid	EPA 8270C
	EPA 8270D
Benzyl alcohol	EPA 8270C
	EPA 8270D
Caprolactam	EPA 8270C
	EPA 8270D
Dibenzofuran	EPA 8270C
	EPA 8270D
Ethyl methanesulfonate	EPA 8270C
	EPA 8270D
Isosafrole	EPA 8270C
	EPA 8270D
Methyl methanesulfonate	EPA 8270C
	EPA 8270D
O,O,O-Triethyl phosphorothioate	EPA 8270C
	EPA 8270D
Phenacetin	EPA 8270C
	EPA 8270D
Safrole	EPA 8270C
	EPA 8270D

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Volatile Aromatics	
1,2,4-Trimethylbenzene	EPA 8021B
	EPA 8260B
1,2-Dichlorobenzene	EPA 8260B
1,3,5-Trimethylbenzene	EPA 8021B
	EPA 8260B
1,3-Dichlorobenzene	EPA 8260B
1,4-Dichlorobenzene	EPA 8260B
2-Chlorotoluene	EPA 8021B
	EPA 8260B
4-Chlorotoluene	EPA 8021B
	EPA 8260B
Benzene	EPA 8021B
	EPA 8260B
Bromobenzene	EPA 8021B
	EPA 8260B
Chlorobenzene	EPA 8260B
Ethyl benzene	EPA 8021B
	EPA 8260B
Isopropylbenzene	EPA 8021B
	EPA 8260B
Naphthalene, Volatile	EPA 8260B
n-Butylbenzene	EPA 8021B
	EPA 8260B
n-Propylbenzene	EPA 8021B
	EPA 8260B
p-Isopropyltoluene (P-Cymene)	EPA 8021B

Volatile Aromatics	
p-Isopropyltoluene (P-Cymene)	EPA 8260B
sec-Butylbenzene	EPA 8021B
	EPA 8260B
Styrene	EPA 8260B
tert-Butylbenzene	EPA 8021B
	EPA 8260B
Toluene	EPA 8021B
	EPA 8260B
Total Xylenes	EPA 8021B
	EPA 8260B
Volatile Chlorinated Organics	
Epichlorohydrin	EPA 8260B
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260B
1,1,1-Trichloroethane	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 8260B
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
1,1,2-Trichloroethane	EPA 8260B
1,1-Dichloroethane	EPA 8260B
1,1-Dichloroethene	EPA 8260B
1,1-Dichloropropene	EPA 8260B
1,2,3-Trichloropropane	EPA 8260B
1,2-Dibromo-3-chloropropane	EPA 8260B
1,2-Dibromoethane	EPA 8260B
1,2-Dichloroethane	EPA 8260B

Serial No.: 48113

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. CHRISTOPHER SPENCER
TESTAMERICA BUFFALO
10 HAZELWOOD DRIVE - SUITE 106
AMHERST, NY 14228

NY Lab Id No: 10026

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Volatile Halocarbons	
1,2-Dichloropropane	EPA 8260B
1,3-Dichloropropane	EPA 8260B
2,2-Dichloropropane	EPA 8260B
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B
2-Chloroethylvinyl ether	EPA 8260B
3-Chloropropene (Allyl chloride)	EPA 8260B
Bromochloromethane	EPA 8260B
Bromodichloromethane	EPA 8260B
Bromoform	EPA 8260B
Bromomethane	EPA 8260B
Carbon tetrachloride	EPA 8260B
Chloroethane	EPA 8260B
Chloroform	EPA 8260B
Chloromethane	EPA 8260B
cis-1,2-Dichloroethene	EPA 8260B
cis-1,3-Dichloropropene	EPA 8260B
cis-1,4-Dichloro-2-butene	EPA 8260B
Dibromochloromethane	EPA 8260B
Dibromomethane	EPA 8021B
	EPA 8260B
Dichlorodifluoromethane	EPA 8260B
Hexachlorobutadiene, Volatile	EPA 8260B
Methylene chloride	EPA 8260B
Tetrachloroethene	EPA 8260B
trans-1,2-Dichloroethene	EPA 8260B
trans-1,3-Dichloropropene	EPA 8260B

Volatile Halocarbons	
trans-1,4-Dichloro-2-butene	EPA 8260B
Trichloroethene	EPA 8260B
Trichlorofluoromethane	EPA 8260B
Vinyl chloride	EPA 8260B
Volatile Organics	
1,4-Dioxane	EPA 8260B
2-Butanone (Methylethyl ketone)	EPA 8260B
2-Hexanone	EPA 8260B
4-Methyl-2-Pentanone	EPA 8260B
Acetone	EPA 8260B
Acetonitrile	EPA 8260B
Carbon Disulfide	EPA 8260B
Cyclohexane	EPA 8260B
Ethyl Acetate	EPA 8260B
Ethylene Glycol	EPA 8015B
	EPA 8015C
Isobutyl alcohol	EPA 8015B
	EPA 8015C
	EPA 8260B
Methyl acetate	EPA 8260B
Methyl cyclohexane	EPA 8260B
Methyl tert-butyl ether	EPA 8260B
o-Toluidine	EPA 8260B
Propionitrile	EPA 8260B
tert-butyl alcohol	EPA 8015B

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All approved analytes are listed below:

Volatile Organics	
tert-butyl alcohol	EPA 8015C
Vinyl acetate	EPA 8260B
Sample Preparation Methods	
	EPA 3005A
	EPA 3010A
	EPA 3020A
	EPA 3050B
	EPA 3550B
	EPA 3550C
	EPA 3580
	EPA 5035A-H
	EPA 5035A-L
	EPA 5035-H
	EPA 5035-L

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ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:

Miscellaneous

Lead in Paint	EPA 6010B

Sample Preparation Methods

	EPA 3050B

Serial No.: 48114

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All approved analytes are listed below:

Polynuclear Aromatics	
Benzo(a)pyrene	NIOSH 5515
Naphthalene	NIOSH 5515
Purgeable Aromatics	
Benzene	NIOSH 1501
Ethyl benzene	NIOSH 1501
m/p-Xylenes	NIOSH 1501
o-Xylene	NIOSH 1501
Toluene	NIOSH 1501
Total Xylenes	NIOSH 1501

Serial No.: 48115

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The Commonwealth of Massachusetts

Department of Environmental Protection

Division of Environmental Analysis
Senator William X. Wall Experiment Station

certifies

M-NY063

ADIRONDACK ENVIRONMENTAL SERVICES INC
314 NORTH PEARL ST
ALBANY, NY 12207-0000

Laboratory Director: **Paul A. Batista**

for the analysis of **NON POTABLE WATER (CHEMISTRY)**

pursuant to 310 CMR 42.00

This certificate supersedes all previous Massachusetts certificates issued to this laboratory. The laboratory is regulated by and shall be responsible for being in compliance with Massachusetts regulations at 310 CMR 42.00.

This certificate is valid only when accompanied by the latest dated Certified Parameter List as issued by the Massachusetts D.E.P. Contact the Division of Environmental Analysis to verify the current certification status of the laboratory.

Certification is no guarantee of the validity of the data. This certification is subject to unannounced laboratory inspections.

Issued: **01 JUL 2012**

Expires: **30 JUN 2013**

Oscar C. Parcarba

Director, Division of Environmental Analysis

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 01 JUL 2012

M-NY063 ADIRONDACK ENVIRONMENTAL SERVICES INC
ALBANY NY

NON POTABLE WATER (CHEMISTRY) **Effective Date** **01 JUL 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
ALUMINUM	EPA 200.7
ANTIMONY	EPA 200.7
ARSENIC	EPA 200.7
BERYLLIUM	EPA 200.7
CADMIUM	EPA 200.7
CHROMIUM	EPA 200.7
COPPER	EPA 200.7
IRON	EPA 200.7
LEAD	EPA 200.7
MANGANESE	EPA 200.7
MERCURY	EPA 245.1
MOLYBDENUM	EPA 200.7
NICKEL	EPA 200.7
SELENIUM	EPA 200.7
SILVER	EPA 200.7
THALLIUM	EPA 200.7
TITANIUM	EPA 200.7
ZINC	EPA 200.7
SPECIFIC CONDUCTIVITY	EPA 120.1
TOTAL DISSOLVED SOLIDS	SM 2540C
CALCIUM	EPA 200.7
MAGNESIUM	EPA 200.7
SODIUM	EPA 200.7
ALKALINITY, TOTAL	SM 2320B
CHLORIDE	SM 4500-CL-C
CHLORIDE	EPA 300.0
FLUORIDE	EPA 300.0
SULFATE	EPA 300.0
AMMONIA-N	SM18-B,H/19,20-B,G-AP
PHOSPHORUS, TOTAL	SM 4500-P-B,E
BIOCHEMICAL OXYGEN DEMAND	SM 5210B
TOTAL ORGANIC CARBON	SM 5310C
CYANIDE, TOTAL	SM 4500-CN-C,E
NON-FILTERABLE RESIDUE	SM 2540D
OIL AND GREASE	EPA 1664
PHENOLICS, TOTAL	EPA 420.1
VOLATILE HALOCARBONS	EPA 624
VOLATILE AROMATICS	EPA 624
CHLORDANE	EPA 608
ALDRIN	EPA 608
DIELDRIN	EPA 608
DDD	EPA 608
DDE	EPA 608

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 01 JUL 2012

M-NY063 **ADIRONDACK ENVIRONMENTAL SERVICES INC**
ALBANY NY

NON POTABLE WATER (CHEMISTRY) **Effective Date** **01 JUL 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
DDT	EPA 608
HEPTACHLOR	EPA 608
HEPTACHLOR EPOXIDE	EPA 608
POLYCHLORINATED BIPHENYLS (WATEF	EPA 608

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

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MR. PAUL BATISTA
ADIRONDACK ENVIRONMENTAL SERVICES INC
314 NORTH PEARL STREET
ALBANY, NY 12207

NY Lab Id No: 10709

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved analytes are listed below:

Fuels	
B.T.U.	ASTM D2015-77
Percent Sulfur	ASTM D4294-03
Metals II	
Beryllium, Total	NIOSH 7300
Mercury, Total	NIOSH 6009
Metals III	
Chromium, Total	NIOSH 7300
Miscellaneous Air	
Particulates	40 CFR 60 APP A Method 5
Polychlorinated Biphenyls	
PCB-1016	EPA TO-10A (Mod. Ultrasonic Extractior
PCB-1221	EPA TO-10A (Mod. Ultrasonic Extractior
PCB-1232	EPA TO-10A (Mod. Ultrasonic Extractior
PCB-1242	EPA TO-10A (Mod. Ultrasonic Extractior
PCB-1248	EPA TO-10A (Mod. Ultrasonic Extractior
PCB-1254	EPA TO-10A (Mod. Ultrasonic Extractior
PCB-1260	EPA TO-10A (Mod. Ultrasonic Extractior
Surface Coating	
Density	ASTM D1475-60
Percent Solids	ASTM D2697-86
Percent Water	EPA 24
Volatile Content	ASTM D2369-81
	EPA 24

Serial No.: 48359

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314 NORTH PEARL STREET
ALBANY, NY 12207

NY Lab Id No: 10709

is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved subcategories and/or analytes are listed below:

Metals I	
Lead, Total	NIOSH 7300
Miscellaneous Air	
Asbestos	40 CFR 763 APX A No. III
	NIOSH 7402
	YAMATE,AGARWAL GIBB
Fibers	NIOSH 7400 A RULES
Sample Preparation Methods	
	40 CFR PART 50 1984 APP B

Serial No.: 48360

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WADSWORTH CENTER

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314 NORTH PEARL STREET
ALBANY, NY 12207

NY Lab Id No: 10709

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ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:

Miscellaneous

Asbestos in Friable Material	EPA 600/M4/82/020
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)
Asbestos in Non-Friable Material-TEM	Item 198.4 of Manual
Lead in Paint	EPA 6010B

Serial No.: 48358

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is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 624
	EPA 8260B
Acrylonitrile	EPA 624
	EPA 8260B
Ethyl methacrylate	EPA 8260B
Methyl acrylonitrile	EPA 8260B
Methyl methacrylate	EPA 8260B
Amines	
1,4-Phenylenediamine	EPA 8270C
1-Naphthylamine	EPA 8270C
2-Naphthylamine	EPA 8270C
2-Nitroaniline	EPA 8270C
3-Nitroaniline	EPA 8270C
4-Chloroaniline	EPA 8270C
4-Nitroaniline	EPA 8270C
5-Nitro-o-toluidine	EPA 8270C
Aniline	EPA 8270C
Carbazole	EPA 8270C
Diphenylamine	EPA 8270C
Methapyrilene	EPA 8270C
Pronamide	EPA 8270C
Propionitrile	EPA 8260B
Pyridine	EPA 8260B
	EPA 8270C
Benzidines	
3,3'-Dichlorobenzidine	EPA 625
	EPA 8270C
Benzidine	EPA 625
	EPA 8270C
Carbamate Pesticides	
Carbofuran	EPA 632
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 608
	EPA 8081A
4,4'-DDE	EPA 608
	EPA 8081A
4,4'-DDT	EPA 608
	EPA 8081A
Aldrin	EPA 608
	EPA 8081A
alpha-BHC	EPA 608
	EPA 8081A
alpha-Chlordane	EPA 8081A
beta-BHC	EPA 608
	EPA 8081A
Chlordane Total	EPA 608
	EPA 8081A
Chlorobenzilate	EPA 8270C
delta-BHC	EPA 608
	EPA 8081A

Serial No.: 48356

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All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides	
Diallate	EPA 8270C
Dichloran	SM 18-20 6630B
Dieldrin	EPA 608
	EPA 8081A
Endosulfan I	EPA 608
	EPA 8081A
Endosulfan II	EPA 608
	EPA 8081A
Endosulfan sulfate	EPA 608
	EPA 8081A
Endrin	EPA 608
	EPA 8081A
Endrin aldehyde	EPA 608
	EPA 8081A
Endrin Ketone	EPA 8081A
gamma-Chlordane	EPA 8081A
Heptachlor	EPA 608
	EPA 8081A
Heptachlor epoxide	EPA 608
	EPA 8081A
Isodrin	EPA 8270C
Kepone	EPA 8270C
Lindane	EPA 608
	EPA 8081A
Methoxychlor	EPA 608
	EPA 8081A

Chlorinated Hydrocarbon Pesticides	
Mirex	SM 18-20 6630C
PCNB	SM 18-20 6630C
Strobane	SM 18-20 6630C
Toxaphene	EPA 608
	EPA 8081A
Chlorinated Hydrocarbons	
1,2,3-Trichlorobenzene	EPA 8260B
1,2,4,5-Tetrachlorobenzene	EPA 8270C
1,2,4-Trichlorobenzene	EPA 625
	EPA 8270C
1-Chloronaphthalene	EPA 8270C
2-Chloronaphthalene	EPA 625
	EPA 8270C
Hexachlorobenzene	EPA 625
	EPA 8270C
Hexachlorobutadiene	EPA 625
	EPA 8270C
Hexachlorocyclopentadiene	EPA 625
	EPA 8270C
Hexachloroethane	EPA 625
	EPA 8270C
Hexachloropropene	EPA 8270C
Pentachlorobenzene	EPA 8270C
Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A

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All approved analytes are listed below:

Chlorophenoxy Acid Pesticides	
2,4,5-T	SM 18-20 6640B
2,4,5-TP (Silvex)	EPA 8151A
	SM 18-20 6640B
2,4-D	EPA 8151A
	SM 18-20 6640B
Dinoseb	EPA 8151A
Demand	
Biochemical Oxygen Demand	SM 18-21 5210B (01)
Carbonaceous BOD	SM 18-21 5210B (01)
Chemical Oxygen Demand	EPA 410.4 Rev. 2.0
Dissolved Gases	
Ethane	RSK-175
Ethene (Ethylene)	RSK-175
Methane	RSK-175
Propane	RSK-175
Fuel Oxygenates	
Ethanol	EPA 8015B
Methyl tert-butyl ether	EPA 8021B
	EPA 8260B
tert-amyl methyl ether (TAME)	EPA 8260B
tert-butyl alcohol	EPA 8260B
Haloethers	
4-Bromophenylphenyl ether	EPA 625
	EPA 8270C
Haloethers	
4-Chlorophenylphenyl ether	EPA 625
	EPA 8270C
Bis(2-chloroethoxy)methane	EPA 625
	EPA 8270C
Bis(2-chloroethyl)ether	EPA 625
	EPA 8270C
Bis(2-chloroisopropyl) ether	EPA 625
	EPA 8270C
Mineral	
Acidity	SM 18-21 2310B.4a (97)
Alkalinity	SM 18-21 2320B (97)
Calcium Hardness	EPA 200.7 Rev. 4.4
Chloride	EPA 300.0 Rev. 2.1
	SM 18-20 4500-Cl- C
Fluoride, Total	EPA 300.0 Rev. 2.1
Hardness, Total	EPA 200.7 Rev. 4.4
Sulfate (as SO4)	EPA 300.0 Rev. 2.1
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270C
1,3-Dinitrobenzene	EPA 8270C
1,4-Naphthoquinone	EPA 8270C
2,4-Dinitrotoluene	EPA 625
	EPA 8270C
2,6-Dinitrotoluene	EPA 625
	EPA 8270C

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All approved analytes are listed below:

Nitroaromatics and Isophorone	
Isophorone	EPA 625
	EPA 8270C
Nitrobenzene	EPA 625
	EPA 8270C
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270C
N-Nitrosodimethylamine	EPA 625
	EPA 8270C
N-Nitrosodi-n-butylamine	EPA 8270C
N-Nitrosodi-n-propylamine	EPA 625
	EPA 8270C
N-Nitrosodiphenylamine	EPA 625
	EPA 8270C
N-nitrosopiperidine	EPA 8270C
N-Nitrosopyrrolidine	EPA 8270C
Nutrient	
Ammonia (as N)	EPA 350.1 Rev. 2.0
	SM 19-21 4500 NH3-C (97)
	SM 19-21 4500-NH3 G (97)
Kjeldahl Nitrogen, Total	SM 19-21 4500 NH3-C (97)
Nitrate (as N)	EPA 300.0 Rev. 2.1
	SM 18-21 4500-NO3 H (00)
Nitrite (as N)	EPA 300.0 Rev. 2.1
	SM 18-21 4500-NO2 B (00)
Orthophosphate (as P)	EPA 300.0 Rev. 2.1
Nutrient	
Orthophosphate (as P)	SM 18-21 4500-P E
Phosphorus, Total	SM 18-21 4500-P E
Organophosphate Pesticides	
Atrazine	EPA 8141A
Azinphos methyl	EPA 8141A
Demeton-O	EPA 8141A
Demeton-S	EPA 8141A
Diazinon	EPA 8141A
Dimethoate	EPA 8141A
Disulfoton	EPA 8141A
Famphur	EPA 8141A
	EPA 8270C
Malathion	EPA 8141A
Parathion ethyl	EPA 8141A
Parathion methyl	EPA 8141A
Phorate	EPA 8141A
Simazine	EPA 8141A
Phthalate Esters	
Benzyl butyl phthalate	EPA 606
	EPA 625
	EPA 8270C
Bis(2-ethylhexyl) phthalate	EPA 606
	EPA 625
	EPA 8270C
Diethyl phthalate	EPA 606

Serial No.: 48356

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. PAUL BATISTA
ADIRONDACK ENVIRONMENTAL SERVICES INC
314 NORTH PEARL STREET
ALBANY, NY 12207

NY Lab Id No: 10709

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Phthalate Esters	
Diethyl phthalate	EPA 625
	EPA 8270C
Dimethyl phthalate	EPA 606
	EPA 625
	EPA 8270C
Di-n-butyl phthalate	EPA 606
	EPA 625
	EPA 8270C
Di-n-octyl phthalate	EPA 606
	EPA 625
	EPA 8270C
Polychlorinated Biphenyls	
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	EPA 8082
2,2',3,3',4,4',5-Heptachlorobiphenyl	EPA 8082
2,2',3,4,4',5,5'-Heptachlorobiphenyl	EPA 8082
2,2',3,4,4',5',6-Heptachlorobiphenyl	EPA 8082
2,2',3,4,4',5'-Hexachlorobiphenyl	EPA 8082
2,2',3,4',5,5',6-Heptachlorobiphenyl	EPA 8082
2,2',3,4,5,5'-Hexachlorobiphenyl	EPA 8082
2,2',3,4,5'-Pentachlorobiphenyl	EPA 8082
2,2',3,5,5',6-Hexachlorobiphenyl	EPA 8082
2,2',3,5'-Tetrachlorobiphenyl	EPA 8082
2,2',4,4',5,5'-Hexachlorobiphenyl	EPA 8082
2,2',4,5,5'-Pentachlorobiphenyl	EPA 8082
2,2',5,5'-Tetrachlorobiphenyl	EPA 8082
Polychlorinated Biphenyls	
2,2',5-Trichlorobiphenyl	EPA 8082
2,3,3',4,6-Pentachlorobiphenyl	EPA 8082
2,3',4,4'-Tetrachlorobiphenyl	EPA 8082
2,3-Dichlorobiphenyl	EPA 8082
2,4',5-Trichlorobiphenyl	EPA 8082
PCB-1016	EPA 608
	EPA 8082
PCB-1221	EPA 608
	EPA 8082
PCB-1232	EPA 608
	EPA 8082
PCB-1242	EPA 608
	EPA 8082
PCB-1248	EPA 608
	EPA 8082
PCB-1254	EPA 608
	EPA 8082
PCB-1260	EPA 608
	EPA 8082
PCB-1262	EPA 8082
PCB-1268	EPA 8082
Polynuclear Aromatics	
3-Methylcholanthrene	EPA 8270C
7,12-Dimethylbenzyl (a) anthracene	EPA 8270C
Acenaphthene	EPA 625

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Polynuclear Aromatics	
Acenaphthene	EPA 8270C
Acenaphthylene	EPA 625
	EPA 8270C
Anthracene	EPA 625
	EPA 8270C
Benzo(a)anthracene	EPA 625
	EPA 8270C
Benzo(a)pyrene	EPA 625
	EPA 8270C
Benzo(b)fluoranthene	EPA 625
	EPA 8270C
Benzo(ghi)perylene	EPA 625
	EPA 8270C
Benzo(k)fluoranthene	EPA 625
	EPA 8270C
Chrysene	EPA 625
	EPA 8270C
Dibenzo(a,h)anthracene	EPA 625
	EPA 8270C
Fluoranthene	EPA 625
	EPA 8270C
Fluorene	EPA 625
	EPA 8270C
Indeno(1,2,3-cd)pyrene	EPA 625
	EPA 8270C
Naphthalene	EPA 625

Polynuclear Aromatics	
Naphthalene	EPA 8270C
Phenanthrene	EPA 625
	EPA 8270C
Pyrene	EPA 625
	EPA 8270C
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270C
2,4,5-Trichlorophenol	EPA 8270C
2,4,6-Trichlorophenol	EPA 604
	EPA 625
	EPA 8270C
2,4-Dichlorophenol	EPA 604
	EPA 625
	EPA 8270C
2,4-Dimethylphenol	EPA 604
	EPA 625
	EPA 8270C
2,4-Dinitrophenol	EPA 604
	EPA 625
	EPA 8270C
2,6-Dichlorophenol	EPA 8270C
2-Chlorophenol	EPA 604
	EPA 625
	EPA 8270C
2-Methyl-4,6-dinitrophenol	EPA 604

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Priority Pollutant Phenols	
2-Methyl-4,6-dinitrophenol	EPA 625
	EPA 8270C
2-Methylphenol	EPA 8270C
2-Nitrophenol	EPA 604
	EPA 625
	EPA 8270C
3-Methylphenol	EPA 8270C
4-Chloro-3-methylphenol	EPA 604
	EPA 625
	EPA 8270C
4-Methylphenol	EPA 8270C
4-Nitrophenol	EPA 604
	EPA 625
	EPA 8270C
Cresols, Total	EPA 8270C
Pentachlorophenol	EPA 604
	EPA 625
	EPA 8270C
Phenol	EPA 604
	EPA 625
	EPA 8270C
Residue	
Settleable Solids	SM 18-21 2540 F (97)
Solids, Total	SM 18-21 2540B (97)
Solids, Total Dissolved	SM 18-21 2540C (97)
Residue	
Solids, Total Suspended	SM 18-21 2540D (97)
Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270C
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C
1,4-Dichlorobenzene, Semi-volatile	EPA 8270C
2-Methylnaphthalene	EPA 8270C
4-Amino biphenyl	EPA 8270C
Acetophenone	EPA 8270C
Benzaldehyde	EPA 8270C
Benzoic Acid	EPA 8270C
Benzyl alcohol	EPA 8270C
Caprolactam	EPA 8270C
Dibenzofuran	EPA 8270C
Ethyl methanesulfonate	EPA 8270C
Isosafrole	EPA 8270C
Methyl methanesulfonate	EPA 8270C
n-Decane	EPA 625
n-Octadecane	EPA 625
O,O,O-Triethyl phosphorothioate	EPA 8270C
p-Dimethylaminoazobenzene	EPA 8270C
Phenacetin	EPA 8270C
Safrole	EPA 8270C
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260B

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Volatile Aromatics	
1,2,4-Trimethylbenzene	EPA 8021B
	EPA 8260B
1,2-Dichlorobenzene	EPA 601
	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
1,3,5-Trimethylbenzene	EPA 8021B
	EPA 8260B
1,3-Dichlorobenzene	EPA 601
	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
1,4-Dichlorobenzene	EPA 601
	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Benzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Chlorobenzene	EPA 601
	EPA 602
	EPA 624

Volatile Aromatics	
Chlorobenzene	EPA 8021B
	EPA 8260B
Ethyl benzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Isopropylbenzene	EPA 8021B
	EPA 8260B
n-Butylbenzene	EPA 8021B
	EPA 8260B
n-Propylbenzene	EPA 8021B
	EPA 8260B
p-Isopropyltoluene (P-Cymene)	EPA 8021B
	EPA 8260B
sec-Butylbenzene	EPA 8021B
	EPA 8260B
Styrene	EPA 8021B
	EPA 8260B
Toluene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Total Xylenes	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B

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Volatile Chlorinated Organics	
Benzyl chloride	EPA 8260B
Epichlorohydrin	EPA 8260B
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8021B
	EPA 8260B
1,1,1-Trichloroethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
1,1,2-Trichloroethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
1,1-Dichloroethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
1,1-Dichloroethene	EPA 601
	EPA 624
	EPA 8021B
Volatile Halocarbons	
1,1-Dichloroethene	EPA 8260B
1,1-Dichloropropene	EPA 8021B
	EPA 8260B
1,2,3-Trichloropropane	EPA 8021B
	EPA 8260B
1,2-Dibromo-3-chloropropane	EPA 8260B
1,2-Dibromoethane	EPA 8260B
1,2-Dichloroethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
1,2-Dichloropropane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
1,3-Dichloropropane	EPA 8021B
	EPA 8260B
2,2-Dichloropropane	EPA 8021B
	EPA 8260B
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B
2-Chloroethylvinyl ether	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
3-Chloropropene (Allyl chloride)	EPA 8260B
Bromochloromethane	EPA 8260B

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Volatile Halocarbons	
Bromodichloromethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
Bromoform	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
Bromomethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
Carbon tetrachloride	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
Chloroethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
Chloroform	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
Chloromethane	EPA 601
	EPA 624

Volatile Halocarbons	
Chloromethane	EPA 8021B
	EPA 8260B
cis-1,2-Dichloroethene	EPA 8021B
	EPA 8260B
cis-1,3-Dichloropropene	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
cis-1,4-Dichloro-2-butene	EPA 8260B
Dibromochloromethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
Dibromomethane	EPA 8021B
	EPA 8260B
Dichlorodifluoromethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
Methyl iodide	EPA 8260B
Methylene chloride	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
Tetrachloroethene	EPA 601
	EPA 624

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All approved analytes are listed below:

Volatile Halocarbons	
Tetrachloroethene	EPA 8021B
	EPA 8260B
trans-1,2-Dichloroethene	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
trans-1,3-Dichloropropene	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
trans-1,4-Dichloro-2-butene	EPA 8260B
Trichloroethene	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
Trichlorofluoromethane	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
Vinyl chloride	EPA 601
	EPA 624
	EPA 8021B
	EPA 8260B
Volatiles Organics	
1,4-Dioxane	EPA 8260B

Volatiles Organics	
2-Butanone (Methylethyl ketone)	EPA 8260B
2-Hexanone	EPA 8260B
4-Methyl-2-Pentanone	EPA 8260B
Acetone	EPA 8260B
Acetonitrile	EPA 8260B
Carbon Disulfide	EPA 8260B
Cyclohexane	EPA 8260B
Ethylene thiourea	EPA 509 (1995)
Isobutyl alcohol	EPA 8260B
Methyl acetate	EPA 8260B
Methyl cyclohexane	EPA 8260B
o-Toluidine	EPA 8260B
Vinyl acetate	EPA 8260B
Wastewater Metals I	
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Calcium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Iron, Total	EPA 200.7 Rev. 4.4

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Wastewater Metals I	
Iron, Total	EPA 6010B
Lead, Total	EPA 200.7 Rev. 4.4
	EPA 200.9 Rev. 2.2
	EPA 6010B
Magnesium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Potassium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Sodium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Strontium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Wastewater Metals II	
Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Antimony, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Arsenic, Total	EPA 200.7 Rev. 4.4
	EPA 6010B

Wastewater Metals II	
Arsenic, Total	SM 18-19, 21 3113B (99 & 04)
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Chromium VI	EPA 7196A
	SM 18-19 3500-Cr D
Mercury, Low Level	EPA 1631E
Mercury, Total	EPA 245.1 Rev. 3.0
	EPA 7470A
Selenium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Wastewater Metals III	
Cobalt, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Gold, Total	EPA 200.7 Rev. 4.4
Molybdenum, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Thallium, Total	EPA 200.7 Rev. 4.4
	EPA 200.9 Rev. 2.2
	EPA 6010B
Tin, Total	EPA 200.7 Rev. 4.4
	EPA 6010B

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All approved analytes are listed below:

Wastewater Metals III	
Titanium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Wastewater Miscellaneous	
Boron, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Bromide	EPA 300.0 Rev. 2.1
Color	SM 18-21 2120B (01)
Cyanide, Total	EPA 335.4 Rev. 1.0
	SM 18-21 4500-CN E (99)
	SM 18-21 4500-CN G (99)
Formaldehyde	EPA 8315
Oil and Grease Total Recoverable (HEM	EPA 1664A
Organic Carbon, Total	SM 18-21 5310C (00)
Phenols	EPA 420.1 Rev. 1978
Specific Conductance	EPA 120.1 Rev. 1982
	SM 18-21 2510B (97)
Sulfide (as S)	EPA 9034
	SM 18-21 4500-S D (00)
	SM 19-21 4500-S F (00)
Surfactant (MBAS)	SM 18-21 5540C (00)
Total Petroleum Hydrocarbons	EPA 1664A
Turbidity	EPA 180.1 Rev. 2.0
	SM 18-21 2130 B (01)
Sample Preparation Methods	
	EPA 3005A

Sample Preparation Methods
EPA 3010A
EPA 3020A
EPA 3510C
EPA 3520C
EPA 3535
EPA 4.1.3
EPA 5030B
EPA 9030B
SM 18-21 4500-F B (97)

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All approved analytes are listed below:

Disinfection By-products	
Bromochloroacetic acid	EPA 552.2
Dibromoacetic acid	EPA 552.2
Dichloroacetic acid	EPA 552.2
Monobromoacetic acid	EPA 552.2
Monochloroacetic acid	EPA 552.2
Trichloroacetic acid	EPA 552.2
Dissolved Gases	
Ethane	RSK-175
Ethene (Ethylene)	RSK-175
Methane	RSK-175
Propane	RSK-175
Drinking Water Metals I	
Arsenic, Total	EPA 200.9 Rev. 2.2
Barium, Total	EPA 200.7 Rev. 4.4
Cadmium, Total	EPA 200.7 Rev. 4.4
Chromium, Total	EPA 200.7 Rev. 4.4
Copper, Total	EPA 200.7 Rev. 4.4
Iron, Total	EPA 200.7 Rev. 4.4
Lead, Total	EPA 200.9 Rev. 2.2
Manganese, Total	EPA 200.7 Rev. 4.4
Mercury, Total	EPA 245.1 Rev. 3.0
Selenium, Total	EPA 200.9 Rev. 2.2
Silver, Total	EPA 200.7 Rev. 4.4
Zinc, Total	EPA 200.7 Rev. 4.4
Drinking Water Metals II	
Aluminum, Total	EPA 200.7 Rev. 4.4
Antimony, Total	EPA 200.9 Rev. 2.2
Beryllium, Total	EPA 200.7 Rev. 4.4
Nickel, Total	EPA 200.7 Rev. 4.4
Thallium, Total	EPA 200.9 Rev. 2.2
Drinking Water Metals III	
Calcium, Total	EPA 200.7 Rev. 4.4
Magnesium, Total	EPA 200.7 Rev. 4.4
Potassium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4
Drinking Water Miscellaneous	
Asbestos	EPA 100.1
Organic Carbon, Dissolved	SM 18-21 5310C (00)
Organic Carbon, Total	SM 18-21 5310C (00)
Total Glycol	NYSDOH APC 44
Turbidity	EPA 180.1 Rev. 2.0
UV 254	SM 19-21 5910B
Drinking Water Non-Metals	
Alkalinity	SM 18-21 2320B (97)
Calcium Hardness	EPA 200.7 Rev. 4.4
Chloride	EPA 300.0 Rev. 2.1
Color	SM 18-21 2120B (01)
Corrosivity	SM 18-19 2330
Cyanide	EPA 335.4 Rev. 1.0

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013
Revised May 08, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. PAUL BATISTA
ADIRONDACK ENVIRONMENTAL SERVICES INC
314 NORTH PEARL STREET
ALBANY, NY 12207

NY Lab Id No: 10709

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Drinking Water Non-Metals	
Fluoride, Total	EPA 300.0 Rev. 2.1
Nitrate (as N)	EPA 300.0 Rev. 2.1
Nitrite (as N)	EPA 300.0 Rev. 2.1
	SM 18-21 4500-NO2 B (00)
Orthophosphate (as P)	EPA 300.0 Rev. 2.1
Solids, Total Dissolved	SM 18-21 2540C (97)
Specific Conductance	SM 18-21 2510B (97)
Sulfate (as SO4)	EPA 300.0 Rev. 2.1
Drinking Water Organohalide Pesticides	
Aldrin	EPA 508
Chlordane Total	EPA 508
Dieldrin	EPA 508
Endrin	EPA 508
Heptachlor	EPA 508
Heptachlor epoxide	EPA 508
Lindane	EPA 508
Methoxychlor	EPA 508
Propachlor	EPA 508
Toxaphene	EPA 508
Drinking Water Trihalomethanes	
Bromodichloromethane	EPA 502.2
	EPA 524.2
Bromoform	EPA 502.2
	EPA 524.2
Chloroform	EPA 502.2
Drinking Water Trihalomethanes	
Chloroform	EPA 524.2
Dibromochloromethane	EPA 502.2
	EPA 524.2
Fuel Additives	
Methyl tert-butyl ether	EPA 502.2/ SEE ITEM 198.5
	EPA 524.2
Microextractibles	
1,2-Dibromo-3-chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Polychlorinated Biphenyls	
PCB Screen	EPA 508
Volatile Aromatics	
1,2,3-Trichlorobenzene	EPA 502.2
	EPA 524.2
1,2,4-Trichlorobenzene	EPA 502.2
	EPA 524.2
1,2,4-Trimethylbenzene	EPA 502.2
	EPA 524.2
1,2-Dichlorobenzene	EPA 502.2
	EPA 524.2
1,3,5-Trimethylbenzene	EPA 502.2
	EPA 524.2
1,3-Dichlorobenzene	EPA 502.2
	EPA 524.2

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Volatile Aromatics	
1,4-Dichlorobenzene	EPA 502.2
	EPA 524.2
2-Chlorotoluene	EPA 502.2
	EPA 524.2
4-Chlorotoluene	EPA 502.2
	EPA 524.2
Benzene	EPA 502.2
	EPA 524.2
Bromobenzene	EPA 502.2
	EPA 524.2
Chlorobenzene	EPA 502.2
	EPA 524.2
Ethyl benzene	EPA 502.2
	EPA 524.2
Hexachlorobutadiene	EPA 502.2
	EPA 524.2
Isopropylbenzene	EPA 502.2
	EPA 524.2
n-Butylbenzene	EPA 502.2
	EPA 524.2
n-Propylbenzene	EPA 502.2
	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 502.2
	EPA 524.2
sec-Butylbenzene	EPA 502.2
	EPA 524.2

Volatile Aromatics	
Styrene	EPA 502.2
	EPA 524.2
tert-Butylbenzene	EPA 502.2
	EPA 524.2
Toluene	EPA 502.2
	EPA 524.2
Total Xylenes	EPA 502.2
	EPA 524.2
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 502.2
	EPA 524.2
1,1,1-Trichloroethane	EPA 502.2
	EPA 524.2
1,1,2,2-Tetrachloroethane	EPA 502.2
	EPA 524.2
1,1,2-Trichloroethane	EPA 502.2
	EPA 524.2
1,1-Dichloroethane	EPA 502.2
	EPA 524.2
1,1-Dichloroethene	EPA 502.2
	EPA 524.2
1,1-Dichloropropene	EPA 502.2
	EPA 524.2
1,2,3-Trichloropropane	EPA 502.2
	EPA 524.2

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Volatile Halocarbons	
1,2-Dichloroethane	EPA 502.2
	EPA 524.2
1,2-Dichloropropane	EPA 502.2
	EPA 524.2
1,3-Dichloropropane	EPA 502.2
	EPA 524.2
2,2-Dichloropropane	EPA 502.2
	EPA 524.2
Bromochloromethane	EPA 502.2
	EPA 524.2
Bromomethane	EPA 502.2
	EPA 524.2
Carbon tetrachloride	EPA 502.2
	EPA 524.2
Chloroethane	EPA 502.2
	EPA 524.2
Chloromethane	EPA 502.2
	EPA 524.2
cis-1,2-Dichloroethene	EPA 502.2
	EPA 524.2
cis-1,3-Dichloropropene	EPA 502.2
	EPA 524.2
Dibromomethane	EPA 502.2
	EPA 524.2
Dichlorodifluoromethane	EPA 502.2
	EPA 524.2

Volatile Halocarbons	
Methylene chloride	EPA 502.2
	EPA 524.2
Tetrachloroethene	EPA 502.2
	EPA 524.2
trans-1,2-Dichloroethene	EPA 502.2
	EPA 524.2
trans-1,3-Dichloropropene	EPA 502.2
	EPA 524.2
Trichloroethene	EPA 502.2
	EPA 524.2
Trichlorofluoromethane	EPA 502.2
	EPA 524.2
Vinyl chloride	EPA 502.2
	EPA 524.2

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All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8260B
Acrylonitrile	EPA 8260B
Amines	
2-Nitroaniline	EPA 8270C
3-Nitroaniline	EPA 8270C
4-Chloroaniline	EPA 8270C
4-Nitroaniline	EPA 8270C
Carbazole	EPA 8270C
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270C
Characteristic Testing	
Corrosivity	EPA 9040C
	EPA 9045D
Free Liquids	EPA 9095B
Ignitability	EPA 1010A
	EPA 1030
Reactivity	SW-846 Ch7 Sec. 7.3
Synthetic Precipitation Leaching Proc.	EPA 1312
TCLP	EPA 1311
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081A
4,4'-DDE	EPA 8081A
4,4'-DDT	EPA 8081A
Aldrin	EPA 8081A

Chlorinated Hydrocarbon Pesticides	
alpha-BHC	EPA 8081A
alpha-Chlordane	EPA 8081A
Atrazine	EPA 8270C
beta-BHC	EPA 8081A
Chlordane Total	EPA 8081A
delta-BHC	EPA 8081A
Dieldrin	EPA 8081A
Endosulfan I	EPA 8081A
Endosulfan II	EPA 8081A
Endosulfan sulfate	EPA 8081A
Endrin	EPA 8081A
Endrin aldehyde	EPA 8081A
Endrin Ketone	EPA 8081A
gamma-Chlordane	EPA 8081A
Heptachlor	EPA 8081A
Heptachlor epoxide	EPA 8081A
Lindane	EPA 8081A
Methoxychlor	EPA 8081A
Toxaphene	EPA 8081A
Chlorinated Hydrocarbons	
1,2,4,5-Tetrachlorobenzene	EPA 8270C
1,2,4-Trichlorobenzene	EPA 8270C
2-Chloronaphthalene	EPA 8270C
Hexachlorobenzene	EPA 8270C
Hexachlorobutadiene	EPA 8270C

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All approved analytes are listed below:

Chlorinated Hydrocarbons	
Hexachlorocyclopentadiene	EPA 8270C
Hexachloroethane	EPA 8270C
Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dichloroprop	EPA 8151A
Haloethers	
4-Bromophenylphenyl ether	EPA 8270C
4-Chlorophenylphenyl ether	EPA 8270C
Bis(2-chloroethoxy)methane	EPA 8270C
Bis(2-chloroethyl)ether	EPA 8270C
Bis(2-chloroisopropyl) ether	EPA 8270C
Metals I	
Barium, Total	EPA 6010B
Cadmium, Total	EPA 6010B
Calcium, Total	EPA 6010B
Chromium, Total	EPA 6010B
Copper, Total	EPA 6010B
Iron, Total	EPA 6010B
Lead, Total	EPA 6010B
Magnesium, Total	EPA 6010B
Manganese, Total	EPA 6010B
Metals I	
Nickel, Total	EPA 6010B
Potassium, Total	EPA 6010B
Silver, Total	EPA 6010B
Sodium, Total	EPA 6010B
Metals II	
Aluminum, Total	EPA 6010B
Antimony, Total	EPA 6010B
Arsenic, Total	EPA 6010B
Beryllium, Total	EPA 6010B
Chromium VI	EPA 7196A
Mercury, Total	EPA 7471A
Selenium, Total	EPA 6010B
Vanadium, Total	EPA 6010B
Zinc, Total	EPA 6010B
Metals III	
Cobalt, Total	EPA 6010B
Molybdenum, Total	EPA 6010B
Thallium, Total	EPA 6010B
Tin, Total	EPA 6010B
Titanium, Total	EPA 6010B
Minerals	
Bromide	EPA 9056A
Chloride	EPA 9056A
Fluoride, Total	EPA 9056A

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Minerals	
Sulfate (as SO4)	EPA 9056A
Miscellaneous	
Cyanide, Total	EPA 9012B
Organic Carbon, Total	Lloyd Kahn Method
Sulfide (as S)	EPA 9034
Nitroaromatics and Isophorone	
2,4-Dinitrotoluene	EPA 8270C
2,6-Dinitrotoluene	EPA 8270C
Isophorone	EPA 8270C
Nitrobenzene	EPA 8270C
Nitrosoamines	
N-Nitrosodi-n-propylamine	EPA 8270C
N-Nitrosodiphenylamine	EPA 8270C
Nutrients	
Nitrate (as N)	EPA 9056A
Nitrite (as N)	EPA 9056A
Orthophosphate (as P)	EPA 9056A
Organophosphate Pesticides	
Azinphos methyl	EPA 8141A
Demeton-O	EPA 8141A
Demeton-S	EPA 8141A
Diazinon	EPA 8141A
Disulfoton	EPA 8141A
Organophosphate Pesticides	
Malathion	EPA 8141A
Parathion ethyl	EPA 8141A
Parathion methyl	EPA 8141A
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015B
Gasoline Range Organics	EPA 8015B
Oil and Grease Total Recoverable (HEM	EPA 9071 (Solvent:Hexane)
Phthalate Esters	
Benzyl butyl phthalate	EPA 8270C
Bis(2-ethylhexyl) phthalate	EPA 8270C
Diethyl phthalate	EPA 8270C
Dimethyl phthalate	EPA 8270C
Di-n-butyl phthalate	EPA 8270C
Di-n-octyl phthalate	EPA 8270C
Polychlorinated Biphenyls	
PCB-1016	EPA 8082
PCB-1221	EPA 8082
PCB-1232	EPA 8082
PCB-1242	EPA 8082
PCB-1248	EPA 8082
PCB-1254	EPA 8082
PCB-1260	EPA 8082
PCB-1262	EPA 8082
PCB-1268	EPA 8082

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Polynuclear Aromatic Hydrocarbons

Acenaphthene	EPA 8270C
Acenaphthylene	EPA 8270C
Anthracene	EPA 8270C
Benzo(a)anthracene	EPA 8270C
Benzo(a)pyrene	EPA 8270C
Benzo(b)fluoranthene	EPA 8270C
Benzo(ghi)perylene	EPA 8270C
Benzo(k)fluoranthene	EPA 8270C
Chrysene	EPA 8270C
Dibenzo(a,h)anthracene	EPA 8270C
Fluoranthene	EPA 8270C
Fluorene	EPA 8270C
Indeno(1,2,3-cd)pyrene	EPA 8270C
Naphthalene	EPA 8270C
Phenanthrene	EPA 8270C
Pyrene	EPA 8270C

Priority Pollutant Phenols

2,3,4,6 Tetrachlorophenol	EPA 8270C
2,4,5-Trichlorophenol	EPA 8270C
2,4,6-Trichlorophenol	EPA 8270C
2,4-Dichlorophenol	EPA 8270C
2,4-Dimethylphenol	EPA 8270C
2,4-Dinitrophenol	EPA 8270C
2-Chlorophenol	EPA 8270C
2-Methyl-4,6-dinitrophenol	EPA 8270C

Priority Pollutant Phenols

2-Methylphenol	EPA 8270C
2-Nitrophenol	EPA 8270C
4-Chloro-3-methylphenol	EPA 8270C
4-Methylphenol	EPA 8270C
4-Nitrophenol	EPA 8270C
Pentachlorophenol	EPA 8270C
Phenol	EPA 8270C

Semi-Volatile Organics

1,1'-Biphenyl	EPA 8270C
2-Methylnaphthalene	EPA 8270C
Acetophenone	EPA 8270C
Benzaldehyde	EPA 8270C
Benzoic Acid	EPA 8270C
Benzyl alcohol	EPA 8270C
Caprolactam	EPA 8270C
Dibenzofuran	EPA 8270C

Volatile Aromatics

1,2,4-Trichlorobenzene, Volatile	EPA 8260B
1,2,4-Trimethylbenzene	EPA 8021B
	EPA 8260B
1,2-Dichlorobenzene	EPA 8021B
	EPA 8260B
1,3,5-Trimethylbenzene	EPA 8021B
	EPA 8260B
1,3-Dichlorobenzene	EPA 8021B

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Volatile Aromatics	
1,3-Dichlorobenzene	EPA 8260B
1,4-Dichlorobenzene	EPA 8021B
	EPA 8260B
2-Chlorotoluene	EPA 8021B
	EPA 8260B
4-Chlorotoluene	EPA 8021B
	EPA 8260B
Benzene	EPA 8021B
	EPA 8260B
Bromobenzene	EPA 8021B
	EPA 8260B
Chlorobenzene	EPA 8021B
	EPA 8260B
Ethyl benzene	EPA 8021B
	EPA 8260B
Isopropylbenzene	EPA 8021B
	EPA 8260B
Naphthalene, Volatile	EPA 8021B
	EPA 8260B
n-Butylbenzene	EPA 8021B
	EPA 8260B
n-Propylbenzene	EPA 8021B
	EPA 8260B
p-Isopropyltoluene (P-Cymene)	EPA 8021B
	EPA 8260B
sec-Butylbenzene	EPA 8021B

Volatile Aromatics	
sec-Butylbenzene	EPA 8260B
Styrene	EPA 8021B
	EPA 8260B
tert-Butylbenzene	EPA 8021B
	EPA 8260B
Toluene	EPA 8021B
	EPA 8260B
Total Xylenes	EPA 8021B
	EPA 8260B
Volatile Halocarbons	
1,1,1-Trichloroethane	EPA 8021B
	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 8021B
	EPA 8260B
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
1,1,2-Trichloroethane	EPA 8021B
	EPA 8260B
1,1-Dichloroethane	EPA 8021B
	EPA 8260B
1,1-Dichloroethene	EPA 8021B
	EPA 8260B
1,2-Dibromo-3-chloropropane	EPA 8260B
1,2-Dibromoethane	EPA 8260B
1,2-Dichloroethane	EPA 8021B
	EPA 8260B

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Volatile Halocarbons	
1,2-Dichloropropane	EPA 8021B
	EPA 8260B
2-Chloroethylvinyl ether	EPA 8021B
	EPA 8260B
Bromochloromethane	EPA 8260B
Bromodichloromethane	EPA 8021B
	EPA 8260B
Bromoform	EPA 8021B
	EPA 8260B
Bromomethane	EPA 8021B
	EPA 8260B
Carbon tetrachloride	EPA 8021B
	EPA 8260B
Chloroethane	EPA 8021B
	EPA 8260B
Chloroform	EPA 8021B
	EPA 8260B
Chloromethane	EPA 8021B
	EPA 8260B
cis-1,2-Dichloroethene	EPA 8021B
	EPA 8260B
cis-1,3-Dichloropropene	EPA 8021B
	EPA 8260B
Dibromochloromethane	EPA 8021B
	EPA 8260B
Dichlorodifluoromethane	EPA 8021B

Volatile Halocarbons	
Dichlorodifluoromethane	EPA 8260B
Methylene chloride	EPA 8021B
	EPA 8260B
Tetrachloroethene	EPA 8021B
	EPA 8260B
trans-1,2-Dichloroethene	EPA 8021B
	EPA 8260B
trans-1,3-Dichloropropene	EPA 8021B
	EPA 8260B
Trichloroethene	EPA 8021B
	EPA 8260B
Trichlorofluoromethane	EPA 8021B
	EPA 8260B
Vinyl chloride	EPA 8021B
	EPA 8260B
Volatile Organics	
1,4-Dioxane	EPA 8260B
2-Butanone (Methylethyl ketone)	EPA 8260B
2-Hexanone	EPA 8260B
4-Methyl-2-Pentanone	EPA 8260B
Acetone	EPA 8260B
Carbon Disulfide	EPA 8260B
Cyclohexane	EPA 8260B
Ethylene Glycol	EPA 8015B
Methyl acetate	EPA 8260B

Serial No.: 48357

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. PAUL BATISTA
ADIRONDACK ENVIRONMENTAL SERVICES INC
314 NORTH PEARL STREET
ALBANY, NY 12207

NY Lab Id No: 10709

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Volatile Organics

Methyl cyclohexane	EPA 8260B
Methyl tert-butyl ether	EPA 8021B
	EPA 8260B
Vinyl acetate	EPA 8260B

Sample Preparation Methods

EPA 3005A
EPA 3010A
EPA 3020A
EPA 3031
EPA 3050B
EPA 3545
EPA 3550B
EPA 3580
EPA 3585
EPA 5035A-H
EPA 5035A-L
EPA 9030B

Serial No.: 48357

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The Commonwealth of Massachusetts

Department of Environmental Protection

Division of Environmental Analysis
Senator William X. Wall Experiment Station

certifies

M-PA009

EUROFINS LANCASTER LABORATORIES INC
2425 NEW HOLLAND PIKE
LANCASTER, PA 17601-5994

Laboratory Director: **Timothy OOSTDYK, PH.D.**

for the analysis of **NON POTABLE WATER (CHEMISTRY)**
POTABLE WATER (CHEMISTRY)

pursuant to 310 CMR 42.00

This certificate supersedes all previous Massachusetts certificates issued to this laboratory. The laboratory is regulated by and shall be responsible for being in compliance with Massachusetts regulations at 310 CMR 42.00.

This certificate is valid only when accompanied by the latest dated Certified Parameter List as issued by the Massachusetts D.E.P. Contact the Division of Environmental Analysis to verify the current certification status of the laboratory.

Certification is no guarantee of the validity of the data. This certification is subject to unannounced laboratory inspections.

Oscar C. Jacobs

Director, Division of Environmental Analysis

Issued: **01 JUL 2012**

Expires: **30 JUN 2013**

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 01 JUL 2012

M-PA009 **EUROFINS LANCASTER LABORATORIES INC**
LANCASTER PA

NON POTABLE WATER (CHEMISTRY) **Effective Date** **01 JUL 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
ANTIMONY	EPA 200.7
ARSENIC	EPA 200.7
BERYLLIUM	EPA 200.7
CADMIUM	EPA 200.7
CHROMIUM	EPA 200.7
COPPER	EPA 200.7
IRON	EPA 200.7
LEAD	EPA 200.7
MANGANESE	EPA 200.7
MERCURY	EPA 245.1
NICKEL	EPA 200.7
SELENIUM	EPA 200.7
SILVER	EPA 200.7
THALLIUM	EPA 200.7
ZINC	EPA 200.7
PH	SM 4500-H-B
SPECIFIC CONDUCTIVITY	SM 2510B
TOTAL DISSOLVED SOLIDS	SM 2540C
HARDNESS (CACO3), TOTAL	SM 2340C
CALCIUM	EPA 200.7
SODIUM	EPA 200.7
CHLORIDE	SM 4500-CL-C
CHLORIDE	EPA 300.0
FLUORIDE	EPA 300.0
SULFATE	EPA 300.0
AMMONIA-N	SM18-B,F/19,20-B,D-ELC
NITRATE-N	EPA 300.0
NITRATE-N	EPA 353.2
KJELDAHL-N	EPA 351.2
PHOSPHORUS, TOTAL	EPA 365.1
CHEMICAL OXYGEN DEMAND	EPA 410.4
TOTAL ORGANIC CARBON	SM 5310C
CYANIDE, TOTAL	EPA 335.4
NON-FILTERABLE RESIDUE	SM 2540D
CHLORINE, TOTAL RESIDUAL	SM 4500-CL-F
VOLATILE HALOCARBONS	EPA 624
VOLATILE AROMATICS	EPA 624

POTABLE WATER (CHEMISTRY) **Effective Date** **01 JUL 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
BARIUM	EPA 200.7
BERYLLIUM	EPA 200.7

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Certified Parameter List as of: 01 JUL 2012

M-PA009 **EUROFINS LANCASTER LABORATORIES INC**
LANCASTER PA

POTABLE WATER (CHEMISTRY) **Effective Date** **01 JUL 2012** **Expiration Date** **30 JUN 2013**

Analytes	Methods
CADMIUM	EPA 200.7
CHROMIUM	EPA 200.7
COPPER	EPA 200.7
MERCURY	EPA 245.1
NICKEL	EPA 200.7
NITRATE-N	EPA 300.0
NITRITE-N	EPA 300.0
NITRITE-N	EPA 353.2
FLUORIDE	EPA 300.0
SODIUM	EPA 200.7
SULFATE	EPA 300.0
CYANIDE, TOTAL	EPA 335.4
CALCIUM	EPA 200.7
ALKALINITY, TOTAL	SM 2320B
TOTAL DISSOLVED SOLIDS	SM 2540C
PH	EPA 150.1
ALACHLOR	EPA 525.2
ATRAZINE	EPA 525.2
ENDRIN	EPA 525.2
HEPTACHLOR	EPA 525.2
HEPTACHLOR EPOXIDE	EPA 525.2
HEXACHLOROBENZENE	EPA 525.2
HEXACHLOROCYCLOPENTADIENE	EPA 525.2
LINDANE	EPA 525.2
METHOXYCHLOR	EPA 525.2
SIMAZINE	EPA 525.2
BENZO-A-PYRENE	EPA 525.2
ADIPATES/PHTHALATES	EPA 525.2
TRIHALOMETHANES	EPA 524.2
VOLATILE ORGANIC COMPOUNDS	EPA 524.2
1,2-DIBROMOETHANE	EPA 504.1
1,2-DIBROMO-3-CHLOROPROPANE	EPA 504.1

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WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

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MR. DUANE LUCKENBILL
EUROFINS LANCASTER LABORATORIES, INC.
2425 NEW HOLLAND PIKE
LANCASTER, PA 17601-5994

NY Lab Id No: 10670

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

D. W. Methylcarbamate Pesticides

3-Hydroxy Carbofuran	EPA 531.1
Aldicarb	EPA 531.1
Aldicarb Sulfone	EPA 531.1
Aldicarb Sulfoxide	EPA 531.1
Carbaryl	EPA 531.1
Carbofuran	EPA 531.1
Methomyl	EPA 531.1
Oxamyl	EPA 531.1

Drinking Water Bacteriology

Coliform, Total / E. coli (Qualitative)	SM 18-21 9223B (97) (Colilert)

Drinking Water Chlorinated Acids

2,4,5-TP (Silvex)	EPA 515.1
2,4-D	EPA 515.1
Dalapon	EPA 515.1
Dicamba	EPA 515.1
Dinoseb	EPA 515.1
Pentachlorophenol	EPA 515.1
Picloram	EPA 515.1

Drinking Water Metals I

Arsenic, Total	EPA 200.8 Rev. 5.4
Barium, Total	EPA 200.7 Rev. 4.4 EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4 EPA 200.8 Rev. 5.4

Drinking Water Metals I

Chromium, Total	EPA 200.7 Rev. 4.4 EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.7 Rev. 4.4 EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
Lead, Total	EPA 200.8 Rev. 5.4
Manganese, Total	EPA 200.7 Rev. 4.4 EPA 200.8 Rev. 5.4
Mercury, Total	EPA 245.1 Rev. 3.0
Selenium, Total	EPA 200.8 Rev. 5.4
Silver, Total	EPA 200.7 Rev. 4.4
Zinc, Total	EPA 200.7 Rev. 4.4

Drinking Water Metals II

Aluminum, Total	EPA 200.7 Rev. 4.4
Antimony, Total	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.7 Rev. 4.4 EPA 200.8 Rev. 5.4
Nickel, Total	EPA 200.7 Rev. 4.4 EPA 200.8 Rev. 5.4

Drinking Water Metals III

Calcium, Total	EPA 200.7 Rev. 4.4
Potassium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4

Drinking Water Miscellaneous

2,3,7,8-Tetrachlorodibenzo-p-dioxin	EPA 1613B

Serial No.: 48344

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2425 NEW HOLLAND PIKE
LANCASTER, PA 17601-5994

NY Lab Id No: 10670

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Drinking Water Miscellaneous

Benzo(a)pyrene	EPA 525.2
Bis(2-ethylhexyl) phthalate	EPA 525.2
Hexachlorobenzene	EPA 508
	EPA 525.2
Hexachlorocyclopentadiene	EPA 508
	EPA 525.2

Drinking Water Non-Metals

Alkalinity	SM 18-21 2320B (97)
Calcium Hardness	SM 18-21 2340B (97)
	SM 18-21 2340C (97)
Chloride	EPA 300.0 Rev. 2.1
Color	SM 18-21 2120B (01)
Cyanide	EPA 335.4 Rev. 1.0
Fluoride, Total	EPA 300.0 Rev. 2.1
	SM 18-21 4500-F C (97)
Nitrate (as N)	EPA 300.0 Rev. 2.1
	EPA 353.2 Rev. 2.0
Nitrite (as N)	EPA 300.0 Rev. 2.1
	EPA 353.2 Rev. 2.0
Silica, Dissolved	SM 20-21 4500 SiO2-C (97)
Solids, Total Dissolved	SM 18-21 2540C (97)
Specific Conductance	SM 18-21 2510B (97)
Sulfate (as SO4)	EPA 300.0 Rev. 2.1

Drinking Water Organohalide Pesticides

Alachlor	EPA 507
Alachlor	EPA 525.2
Aldrin	EPA 508
Atrazine	EPA 507
	EPA 525.2
Butachlor	EPA 525.2
Chlordane Total	EPA 508
Dieldrin	EPA 508
	EPA 525.2
Endrin	EPA 508
	EPA 525.2
Heptachlor	EPA 508
	EPA 525.2
Heptachlor epoxide	EPA 508
	EPA 525.2
Lindane	EPA 508
	EPA 525.2
Methoxychlor	EPA 508
	EPA 525.2
Metolachlor	EPA 525.2
Metribuzin	EPA 525.2
Propachlor	EPA 525.2
Simazine	EPA 507
	EPA 525.2
Toxaphene	EPA 508

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is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Drinking Water Trihalomethanes	
Bromodichloromethane	EPA 524.2
Bromoform	EPA 524.2
Chloroform	EPA 524.2
Dibromochloromethane	EPA 524.2
Total Trihalomethanes	EPA 524.2
Fuel Additives	
Methyl tert-butyl ether	EPA 524.2
Naphthalene	EPA 524.2
Microextractibles	
1,2-Dibromo-3-chloropropane	EPA 504.1
1,2-Dibromoethane	EPA 504.1
Volatile Aromatics	
1,2,3-Trichlorobenzene	EPA 524.2
1,2,4-Trichlorobenzene	EPA 524.2
1,2,4-Trimethylbenzene	EPA 524.2
1,2-Dichlorobenzene	EPA 524.2
1,3,5-Trimethylbenzene	EPA 524.2
1,3-Dichlorobenzene	EPA 524.2
1,4-Dichlorobenzene	EPA 524.2
2-Chlorotoluene	EPA 524.2
4-Chlorotoluene	EPA 524.2
Benzene	EPA 524.2
Bromobenzene	EPA 524.2
Chlorobenzene	EPA 524.2
Volatile Aromatics	
Ethyl benzene	EPA 524.2
Hexachlorobutadiene	EPA 524.2
Isopropylbenzene	EPA 524.2
n-Butylbenzene	EPA 524.2
n-Propylbenzene	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 524.2
sec-Butylbenzene	EPA 524.2
Styrene	EPA 524.2
tert-Butylbenzene	EPA 524.2
Toluene	EPA 524.2
Total Xylenes	EPA 524.2
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 524.2
1,1,1-Trichloroethane	EPA 524.2
1,1,2,2-Tetrachloroethane	EPA 524.2
1,1,2-Trichloroethane	EPA 524.2
1,1-Dichloroethane	EPA 524.2
1,1-Dichloroethene	EPA 524.2
1,1-Dichloropropene	EPA 524.2
1,2,3-Trichloropropane	EPA 524.2
1,2-Dichloroethane	EPA 524.2
1,2-Dichloropropane	EPA 524.2
1,3-Dichloropropane	EPA 524.2
2,2-Dichloropropane	EPA 524.2
Bromochloromethane	EPA 524.2

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2425 NEW HOLLAND PIKE
LANCASTER, PA 17601-5994

NY Lab Id No: 10670

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Volatile Halocarbons

Bromomethane	EPA 524.2
Carbon tetrachloride	EPA 524.2
Chloroethane	EPA 524.2
Chloromethane	EPA 524.2
cis-1,2-Dichloroethene	EPA 524.2
cis-1,3-Dichloropropene	EPA 524.2
Dibromomethane	EPA 524.2
Dichlorodifluoromethane	EPA 524.2
Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 524.2
trans-1,2-Dichloroethene	EPA 524.2
trans-1,3-Dichloropropene	EPA 524.2
Trichloroethene	EPA 524.2
Trichlorofluoromethane	EPA 524.2
Vinyl chloride	EPA 524.2

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LANCASTER, PA 17601-5994

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is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below.

Acrylates	
Acrolein (Propenal)	EPA 624
	EPA 8260B
Acrylonitrile	EPA 624
	EPA 8260B
Amines	
1,2-Diphenylhydrazine	EPA 8270C
	EPA 8270D
1,4-Phenylenediamine	EPA 8270C
	EPA 8270D
1-Naphthylamine	EPA 8270C
	EPA 8270D
2-Naphthylamine	EPA 8270C
	EPA 8270D
2-Nitroaniline	EPA 8270C
	EPA 8270D
3-Nitroaniline	EPA 8270C
	EPA 8270D
4-Chloroaniline	EPA 8270C
	EPA 8270D
4-Nitroaniline	EPA 8270C
	EPA 8270D
5-Nitro-o-toluidine	EPA 8270C
	EPA 8270D
a,a-Dimethylphenethylamine	EPA 8270C
	EPA 8270D
Amines	
Aniline	EPA 8270C
	EPA 8270D
Carbazole	EPA 8270C
	EPA 8270D
Diphenylamine	EPA 8270C
	EPA 8270D
Methapyrilene	EPA 8270C
	EPA 8270D
Pronamide	EPA 8270C
	EPA 8270D
Propionitrile	EPA 8260B
Pyridine	EPA 8270C
	EPA 8270D
Benzidines	
3,3'-Dichlorobenzidine	EPA 625
	EPA 8270C
	EPA 8270D
3,3'-Dimethylbenzidine	EPA 8270C
	EPA 8270D
Benzidine	EPA 625
	EPA 8270C
	EPA 8270D
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 608
	EPA 8081A

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LANCASTER, PA 17601-5994

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All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081B
4,4'-DDE	EPA 608
	EPA 8081A
	EPA 8081B
4,4'-DDT	EPA 608
	EPA 8081A
	EPA 8081B
Aldrin	EPA 608
	EPA 8081A
	EPA 8081B
alpha-BHC	EPA 608
	EPA 8081A
	EPA 8081B
alpha-Chlordane	EPA 8081A
	EPA 8081B
beta-BHC	EPA 608
	EPA 8081A
	EPA 8081B
Chlordane Total	EPA 608
	EPA 8081A
	EPA 8081B
delta-BHC	EPA 608
	EPA 8081A
	EPA 8081B
Dieldrin	EPA 608
	EPA 8081A

Chlorinated Hydrocarbon Pesticides	
Dieldrin	EPA 8081B
Endosulfan I	EPA 608
	EPA 8081A
	EPA 8081B
Endosulfan II	EPA 608
	EPA 8081A
	EPA 8081B
Endosulfan sulfate	EPA 608
	EPA 8081A
	EPA 8081B
Endrin	EPA 608
	EPA 8081A
	EPA 8081B
Endrin aldehyde	EPA 608
	EPA 8081A
	EPA 8081B
Endrin Ketone	EPA 8081A
	EPA 8081B
gamma-Chlordane	EPA 8081A
	EPA 8081B
Heptachlor	EPA 608
	EPA 8081A
	EPA 8081B
Heptachlor epoxide	EPA 608
	EPA 8081A
	EPA 8081B

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All approved analytes are listed below:

Chlorinated Hydrocarbon Pesticides	
Kepone	EPA 8081A
	EPA 8081B
Lindane	EPA 608
	EPA 8081A
	EPA 8081B
Methoxychlor	EPA 8081A
	EPA 8081B
Mirex	EPA 8081A
	EPA 8081B
Toxaphene	EPA 608
	EPA 8081A
	EPA 8081B
Chlorinated Hydrocarbons	
1,2,3-Trichlorobenzene	EPA 8260B
1,2,4,5-Tetrachlorobenzene	EPA 8270C
1,2,4-Trichlorobenzene	EPA 625
	EPA 8270C
	EPA 8270D
1-Chloronaphthalene	EPA 8270C
	EPA 8270D
2-Chloronaphthalene	EPA 625
	EPA 8270C
	EPA 8270D
Hexachlorobenzene	EPA 625
	EPA 8270C

Chlorinated Hydrocarbons	
Hexachlorobenzene	EPA 8270D
Hexachlorobutadiene	EPA 625
	EPA 8270C
	EPA 8270D
Hexachlorocyclopentadiene	EPA 625
	EPA 8270C
	EPA 8270D
Hexachloroethane	EPA 625
	EPA 8270C
	EPA 8270D
Hexachloropropene	EPA 8270C
	EPA 8270D
Pentachlorobenzene	EPA 8270C
	EPA 8270D
Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
2,4-DB	EPA 8151A
Dalapon	EPA 8151A
Dicamba	EPA 8151A
Dichloroprop	EPA 8151A
Dinoseb	EPA 8151A
Demand	
Biochemical Oxygen Demand	SM 18-21 5210B (01)

Serial No.: 48345

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DUANE LUCKENBILL
EUROFINS LANCASTER LABORATORIES, INC.
2425 NEW HOLLAND PIKE
LANCASTER, PA 17601-5994

NY Lab Id No: 10670

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Demand	
Carbonaceous BOD	SM 18-21 5210B (01)
Chemical Oxygen Demand	EPA 410.4 Rev. 2.0
Dioxins and Furans	
2,3,7,8-Tetrachlorodibenzo-p-dioxin	EPA 1613B
Dissolved Gases	
Ethane	RSK-175
Ethene (Ethylene)	RSK-175
Methane	RSK-175
Fuel Oxygenates	
Di-isopropyl ether	EPA 8260B
Ethanol	EPA 8015B
Methyl tert-butyl ether	EPA 8260B
tert-amyl alcohol	EPA 8260B
tert-amyl methyl ether (TAME)	EPA 8260B
tert-butyl alcohol	EPA 8260B
tert-butyl ethyl ether (ETBE)	EPA 8260B
Haloethers	
4-Bromophenylphenyl ether	EPA 625
	EPA 8270C
	EPA 8270D
4-Chlorophenylphenyl ether	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 625
Haloethers	
Bis(2-chloroethoxy)methane	EPA 8270C
	EPA 8270D
Bis(2-chloroethyl)ether	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-chloroisopropyl) ether	EPA 625
	EPA 8270C
	EPA 8270D
Low Level Polynuclear Aromatics	
Acenaphthene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Acenaphthylene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Anthracene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Benzo(a)anthracene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Benzo(a)pyrene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Benzo(b)fluoranthene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Benzo(g,h,i)perylene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Benzo(k)fluoranthene Low Level	EPA 8270C SIM
	EPA 8270D SIM

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Low Level Polynuclear Aromatics	
Chrysene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Dibenzo(a,h)anthracene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Fluoranthene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Fluorene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Indeno(1,2,3-cd)pyrene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Naphthalene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Phenanthrene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Pyrene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Mineral	
Acidity	SM 18-21 2310B.4a (97)
Alkalinity	SM 18-21 2320B (97)
Chloride	EPA 300.0 Rev. 2.1
	EPA 9056A
	SM 18-20 4500-Cl- C
Fluoride, Total	EPA 300.0 Rev. 2.1
	EPA 9056A
	SM 18-21 4500-F C (97)

Mineral	
Hardness, Total	SM 18-21 2340B (97)
	SM 18-21 2340C (97)
Sulfate (as SO4)	EPA 300.0 Rev. 2.1
	EPA 9056A
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8270C
	EPA 8270D
	EPA 8330
	EPA 8330A
1,3-Dinitrobenzene	EPA 8270C
	EPA 8270D
	EPA 8330
	EPA 8330A
1,4-Naphthoquinone	EPA 8270C
	EPA 8270D
2,4,6-Trinitrotoluene	EPA 8330
	EPA 8330A
2,4-Dinitrotoluene	EPA 625
	EPA 8270C
	EPA 8270D
	EPA 8330
	EPA 8330A
2,6-Dinitrotoluene	EPA 625
	EPA 8270C
	EPA 8270D

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Nitroaromatics and Isophorone	
2,6-Dinitrotoluene	EPA 8330
	EPA 8330A
2-Amino-4,6-dinitrotoluene	EPA 8330
	EPA 8330A
2-Nitrotoluene	EPA 8330
	EPA 8330A
3-Nitrotoluene	EPA 8330
	EPA 8330A
4-Amino-2,6-dinitrotoluene	EPA 8330
	EPA 8330A
4-Nitrotoluene	EPA 8330
	EPA 8330A
Hexahydro-1,3,5-trinitro-1,3,5-triazine	EPA 8330
	EPA 8330A
Isophorone	EPA 625
	EPA 8270C
	EPA 8270D
Methyl-2,4,6-trinitrophenylnitramine	EPA 8330
	EPA 8330A
Nitrobenzene	EPA 625
	EPA 8270C
	EPA 8270D
Nitroquinoline-1-oxide	EPA 8330
	EPA 8330A
	EPA 8270C
	EPA 8270D
Nitroaromatics and Isophorone	
Octahydro-tetranitro-tetrazocine	EPA 8330
	EPA 8330A
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270C
	EPA 8270D
N-Nitrosodimethylamine	EPA 625
	EPA 8270C
	EPA 8270D
N-Nitrosodi-n-butylamine	EPA 8270C
	EPA 8270D
N-Nitrosodi-n-propylamine	EPA 625
	EPA 8270C
	EPA 8270D
N-Nitrosodiphenylamine	EPA 625
	EPA 8270C
	EPA 8270D
N-nitrosomethylethylamine	EPA 8270C
	EPA 8270D
N-nitrosomorpholine	EPA 8270C
	EPA 8270D
N-nitrosopiperidine	EPA 8270C
	EPA 8270D
N-Nitrosopyrrolidine	EPA 8270C
	EPA 8270D

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Nutrient	
Ammonia (as N)	SM 19-21 4500 NH3-C (97)
	SM 19-21 4500-NH3 D or E (97)
Kjeldahl Nitrogen, Total	EPA 351.2 Rev. 2.0
Nitrate (as N)	EPA 300.0 Rev. 2.1
	EPA 353.2 Rev. 2.0
	EPA 9056A
Nitrite (as N)	EPA 300.0 Rev. 2.1
	EPA 353.2 Rev. 2.0
	EPA 9056A
Orthophosphate (as P)	EPA 365.3 Rev. 1978
	SM 18-21 4500-P E
Phosphorus, Total	EPA 365.1 Rev. 2.0
	SM 18-21 4500-P F
Organophosphate Pesticides	
Atrazine	EPA 8141A
Azinphos methyl	EPA 8141A
Demeton-O	EPA 8141A
Demeton-S	EPA 8141A
Diazinon	EPA 8141A
Disulfoton	EPA 8141A
Famphur	EPA 8141A
Malathion	EPA 8141A
Parathion ethyl	EPA 8141A
Parathion methyl	EPA 8141A
Phorate	EPA 8141A
Organophosphate Pesticides	
Simazine	EPA 8141A
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015B
	EPA 8015C
Gasoline Range Organics	EPA 8015B
	EPA 8015C
	EPA 8260B
	EPA 8260C
Phthalate Esters	
Benzyl butyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Diethyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Dimethyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Di-n-butyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Di-n-octyl phthalate	EPA 625

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Phthalate Esters	
Di-n-octyl phthalate	EPA 8270C
	EPA 8270D
Polychlorinated Biphenyls	
2,2',3,3',4,4',5,6-Octachlorobiphenyl	EPA 1668 A
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	EPA 1668 A
2,2',3,3',4,4',5-Heptachlorobiphenyl	EPA 1668 A
2,2',3,3',4,4'-Hexachlorobiphenyl	EPA 1668 A
2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	EPA 1668 A
2,2',3,3',5,5',6,6'-Octachlorobiphenyl	EPA 1668 A
2,2',3,4,4',5,5'-Heptachlorobiphenyl	EPA 1668 A
2,2',3,4,4',5',6-Heptachlorobiphenyl	EPA 1668 A
2,2',3,4,4',5'-Hexachlorobiphenyl	EPA 1668 A
2,2',3,4,4',6,6'-Heptachlorobiphenyl	EPA 1668 A
2,2',3,4',5,5',6-Heptachlorobiphenyl	EPA 1668 A
2,2',3,4,5,5'-Hexachlorobiphenyl	EPA 1668 A
2,2',3,4',5,6,6'-Heptachlorobiphenyl	EPA 1668 A
2,2',3,4,5'-Pentachlorobiphenyl	EPA 1668 A
2,2',3,5,5',6-Hexachlorobiphenyl	EPA 1668 A
2,2',3,5'-Tetrachlorobiphenyl	EPA 1668 A
2,2',4,4',5,5'-Hexachlorobiphenyl	EPA 1668 A
2,2',4,4',6,6'-Hexachlorobiphenyl	EPA 1668 A
2,2',4,5,5'-Pentachlorobiphenyl	EPA 1668 A
2,2',4,5'-Tetrachlorobiphenyl	EPA 1668 A
2,2',4,6,6'-Pentachlorobiphenyl	EPA 1668 A
2,2',5,5'-Tetrachlorobiphenyl	EPA 1668 A

Polychlorinated Biphenyls	
2,2',5-Trichlorobiphenyl	EPA 1668 A
2,2',6,6'-Tetrachlorobiphenyl	EPA 1668 A
2,2',6-Trichlorobiphenyl	EPA 1668 A
2,3,3',4,4',5,5',6-Octachlorobiphenyl	EPA 1668 A
2,3,3',4,4',5,5'-Heptachlorobiphenyl	EPA 1668 A
2,3,3',4,4',5'-Hexachlorobiphenyl	EPA 1668 A
2,3,3',4,4',5-Hexachlorobiphenyl	EPA 1668 A
2,3,3',4,4'-Pentachlorobiphenyl	EPA 1668 A
2,3,3',4,6-Pentachlorobiphenyl	EPA 1668 A
2,3',4,4',5,5'-Hexachlorobiphenyl	EPA 1668 A
2,3',4,4',5'-Pentachlorobiphenyl	EPA 1668 A
2,3,4,4',5-Pentachlorobiphenyl	EPA 1668 A
2,3',4,4',5-Pentachlorobiphenyl	EPA 1668 A
2,3',4,4'-Tetrachlorobiphenyl	EPA 1668 A
2,3-Dichlorobiphenyl	EPA 1668 A
2,4,4'-Trichlorobiphenyl	EPA 1668 A
2,4',5-Trichlorobiphenyl	EPA 1668 A
2,4'-Dichlorobiphenyl	EPA 1668 A
3,3',4,4',5,5'-Hexachlorobiphenyl	EPA 1668 A
3,3',4,4',5-Pentachlorobiphenyl	EPA 1668 A
3,3',4,4'-Tetrachlorobiphenyl	EPA 1668 A
3,3',4,5,5'-Pentachlorobiphenyl	EPA 1668 A
3,4,4',5-Tetrachlorobiphenyl	EPA 1668 A
3,4,4'-Trichlorobiphenyl	EPA 1668 A
4,4'-Dichlorobiphenyl	EPA 1668 A
4-Chlorobiphenyl	EPA 1668 A

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All approved analytes are listed below:

Polychlorinated Biphenyls		Polynuclear Aromatics	
PCB-1016	EPA 608	2-Acetylaminofluorene	EPA 8270C
	EPA 8082		EPA 8270D
	EPA 8082A	3-Methylcholanthrene	EPA 8270C
PCB-1221	EPA 608		EPA 8270D
	EPA 8082	7,12-Dimethylbenzyl (a) anthracene	EPA 8270C
	EPA 8082A		EPA 8270D
PCB-1232	EPA 608	Acenaphthene	EPA 625
	EPA 8082		EPA 8270C
	EPA 8082A		EPA 8270D
PCB-1242	EPA 608	Acenaphthylene	EPA 625
	EPA 8082		EPA 8270C
	EPA 8082A		EPA 8270D
PCB-1248	EPA 608	Anthracene	EPA 625
	EPA 8082		EPA 8270C
	EPA 8082A		EPA 8270D
PCB-1254	EPA 608	Benzo(a)anthracene	EPA 625
	EPA 8082		EPA 8270C
	EPA 8082A		EPA 8270D
PCB-1260	EPA 608	Benzo(a)pyrene	EPA 625
	EPA 8082		EPA 8270C
	EPA 8082A		EPA 8270D
PCB-1262	EPA 8082	Benzo(b)fluoranthene	EPA 625
	EPA 8082A		EPA 8270C
PCB-1268	EPA 8082		EPA 8270D
	EPA 8082A	Benzo(ghi)perylene	EPA 625
			EPA 8270C

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Polynuclear Aromatics	
Benzo(ghi)perylene	EPA 8270D
Benzo(k)fluoranthene	EPA 625
	EPA 8270C
	EPA 8270D
Chrysene	EPA 625
	EPA 8270C
	EPA 8270D
Dibenzo(a,h)anthracene	EPA 625
	EPA 8270C
	EPA 8270D
Fluoranthene	EPA 625
	EPA 8270C
	EPA 8270D
Fluorene	EPA 625
	EPA 8270C
	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 625
	EPA 8270C
	EPA 8270D
Naphthalene	EPA 625
	EPA 8270C
	EPA 8270D
Phenanthrene	EPA 625
	EPA 8270C
	EPA 8270D
Pyrene	EPA 625

Polynuclear Aromatics	
Pyrene	EPA 8270C
	EPA 8270D
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270C
	EPA 8270D
2,4,5-Trichlorophenol	EPA 8270C
	EPA 8270D
2,4,6-Trichlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4-Dichlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4-Dimethylphenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4-Dinitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
2,6-Dichlorophenol	EPA 8270C
	EPA 8270D
2-Chlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 625

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Priority Pollutant Phenols	
2-Methyl-4,6-dinitrophenol	EPA 8270C
	EPA 8270D
2-Methylphenol	EPA 8270C
	EPA 8270D
2-Nitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
3-Methylphenol	EPA 8270D
4-Chloro-3-methylphenol	EPA 625
	EPA 8270C
	EPA 8270D
4-Methylphenol	EPA 8270C
	EPA 8270D
4-Nitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
Pentachlorophenol	EPA 625
	EPA 8151A
	EPA 8270C
	EPA 8270D
Phenol	EPA 625
	EPA 8270C
	EPA 8270D
Residue	
Solids, Total	SM 18-21 2540B (97)

Residue	
Solids, Total Dissolved	SM 18-21 2540C (97)
Solids, Total Suspended	SM 18-21 2540D (97)
Semi-Volatile Organics	
1,1'-Biphenyl	EPA 8270C
	EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
2-Methylnaphthalene	EPA 8270C
	EPA 8270D
2-Picoline	EPA 8270C
	EPA 8270D
4-Amino biphenyl	EPA 8270C
	EPA 8270D
Acetophenone	EPA 8270C
	EPA 8270D
Aramite	EPA 8270D
Benzaldehyde	EPA 8270D
	EPA 8315
Benzoic Acid	EPA 8270C
	EPA 8270D
Benzyl alcohol	EPA 8270C

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Semi-Volatile Organics	
Benzyl alcohol	EPA 8270D
Caprolactam	EPA 8270C
	EPA 8270D
Dibenzofuran	EPA 8270C
	EPA 8270D
Ethyl methanesulfonate	EPA 8270C
	EPA 8270D
Isosafrole	EPA 8270C
	EPA 8270D
Methyl methanesulfonate	EPA 8270C
	EPA 8270D
O,O,O-Triethyl phosphorothioate	EPA 8270C
	EPA 8270D
p-Dimethylaminoazobenzene	EPA 8270C
	EPA 8270D
Phenacetin	EPA 8270C
	EPA 8270D
Safrole	EPA 8270C
	EPA 8270D
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260B
1,2,4-Trimethylbenzene	EPA 8260B
1,2-Dichlorobenzene	EPA 624
	EPA 8260B
1,3,5-Trimethylbenzene	EPA 8260B

Volatile Aromatics	
1,3-Dichlorobenzene	EPA 624
	EPA 8260B
1,4-Dichlorobenzene	EPA 624
	EPA 8260B
2-Chlorotoluene	EPA 8260B
4-Chlorotoluene	EPA 8260B
Benzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Chlorobenzene	EPA 624
	EPA 8260B
Ethyl benzene	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Isopropylbenzene	EPA 8260B
Naphthalene, Volatile	EPA 8260B
n-Butylbenzene	EPA 8260B
n-Propylbenzene	EPA 8260B
p-Isopropyltoluene (P-Cymene)	EPA 8260B
sec-Butylbenzene	EPA 8260B
Styrene	EPA 8260B
tert-Butylbenzene	EPA 8260B
Toluene	EPA 602
	EPA 624

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DUANE LUCKENBILL
EUROFINS LANCASTER LABORATORIES, INC.
2425 NEW HOLLAND PIKE
LANCASTER, PA 17601-5994

NY Lab Id No: 10670

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Volatile Aromatics	
Toluene	EPA 8021B
	EPA 8260B
Total Xylenes	EPA 602
	EPA 624
	EPA 8021B
	EPA 8260B
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260B
1,1,1-Trichloroethane	EPA 624
	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 624
	EPA 8260B
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
1,1,2-Trichloroethane	EPA 624
	EPA 8260B
1,1-Dichloroethane	EPA 624
	EPA 8260B
1,1-Dichloroethene	EPA 624
	EPA 8260B
1,1-Dichloropropene	EPA 8260B
1,2,3-Trichloropropane	EPA 8260B
1,2-Dibromo-3-chloropropane	EPA 8011
	EPA 8260B
1,2-Dibromoethane	EPA 8011
	EPA 8260B

Volatile Halocarbons	
1,2-Dichloroethane	EPA 624
	EPA 8260B
1,2-Dichloropropane	EPA 624
	EPA 8260B
1,3-Dichloropropane	EPA 8260B
2,2-Dichloropropane	EPA 8260B
2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B
2-Chloroethylvinyl ether	EPA 624
	EPA 8260B
3-Chloropropene (Allyl chloride)	EPA 8260B
Bromochloromethane	EPA 8260B
Bromodichloromethane	EPA 624
	EPA 8260B
Bromoform	EPA 624
	EPA 8260B
Bromomethane	EPA 624
	EPA 8260B
Carbon tetrachloride	EPA 624
	EPA 8260B
Chloroethane	EPA 624
	EPA 8260B
Chloroform	EPA 624
	EPA 8260B
Chloromethane	EPA 624
	EPA 8260B
cis-1,2-Dichloroethene	EPA 624

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Volatile Halocarbons		**Volatiles Organics**	
cis-1,2-Dichloroethene	EPA 8260B	1,4-Dioxane	EPA 8260B
cis-1,3-Dichloropropene	EPA 624	2-Butanone (Methylethyl ketone)	EPA 8260B
	EPA 8260B	2-Hexanone	EPA 8260B
Dibromochloromethane	EPA 624	2-Nitropropane	EPA 8260B
	EPA 8260B	4-Methyl-2-Pentanone	EPA 8260B
Dibromomethane	EPA 8260B	Acetone	EPA 8260B
Dichlorodifluoromethane	EPA 624	Acetonitrile	EPA 8260B
	EPA 8260B	Carbon Disulfide	EPA 8260B
Hexachlorobutadiene, Volatile	EPA 8260B	Cyclohexane	EPA 8260B
Methyl iodide	EPA 8260B	Di-ethyl ether	EPA 8260B
Methylene chloride	EPA 624	Ethyl Acetate	EPA 1666
	EPA 8260B		EPA 8260B
Tetrachloroethene	EPA 624	Isobutyl alcohol	EPA 8260B
	EPA 8260B	Isopropyl Acetate	EPA 1666
trans-1,2-Dichloroethene	EPA 624	Methyl acetate	EPA 8260B
	EPA 8260B	Methyl cyclohexane	EPA 8260B
trans-1,3-Dichloropropene	EPA 624	n-Amyl Acetate	EPA 1666
	EPA 8260B	n-Butanol	EPA 8260B
trans-1,4-Dichloro-2-butene	EPA 8260B	n-Butyl Acetate	EPA 1666
Trichloroethene	EPA 624	o-Toluidine	EPA 8270C
	EPA 8260B		EPA 8270D
Trichlorofluoromethane	EPA 624	Vinyl acetate	EPA 8260B
	EPA 8260B	**Wastewater Metals I**	
Vinyl chloride	EPA 624	Barium, Total	EPA 200.7 Rev. 4.4
	EPA 8260B		EPA 200.8 Rev. 5.4

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All approved analytes are listed below:

Wastewater Metals I		**Wastewater Metals I**	
Barium, Total	EPA 6010B	Iron, Total	EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020	Lead, Total	EPA 200.7 Rev. 4.4
	EPA 6020A		EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4		EPA 6010B
	EPA 200.8 Rev. 5.4		EPA 6010C
	EPA 6010B		EPA 6020
	EPA 6010C		EPA 6020A
	EPA 6020	Magnesium, Total	EPA 200.7 Rev. 4.4
	EPA 6020A		EPA 6010B
Calcium, Total	EPA 200.7 Rev. 4.4		EPA 6010C
	EPA 6010B	Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 6010C		EPA 200.8 Rev. 5.4
Chromium, Total	EPA 200.7 Rev. 4.4		EPA 6010B
	EPA 200.8 Rev. 5.4		EPA 6010C
	EPA 6010B	Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 6010C		EPA 200.8 Rev. 5.4
	EPA 6020		EPA 6010B
	EPA 6020A		EPA 6010C
Copper, Total	EPA 200.7 Rev. 4.4		EPA 6020
	EPA 200.8 Rev. 5.4		EPA 6020A
	EPA 6010B	Potassium, Total	EPA 200.7 Rev. 4.4
	EPA 6010C		EPA 6010B
	EPA 6020		EPA 6010C
	EPA 6020A	Silver, Total	EPA 200.7 Rev. 4.4
Iron, Total	EPA 200.7 Rev. 4.4		EPA 200.8 Rev. 5.4

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Wastewater Metals I

Silver, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Sodium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
	EPA 6010C
Strontium, Total	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A

Wastewater Metals II

Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Antimony, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Arsenic, Total	EPA 200.7 Rev. 4.4

Wastewater Metals II

Arsenic, Total	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Chromium VI	EPA 218.6 Rev. 3.3
	EPA 7196A
	EPA 7199
	SM 20-21 3500-Cr B (01)
Mercury, Low Level	EPA 1631E
Mercury, Total	EPA 245.1 Rev. 3.0
	EPA 7470A
Selenium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	EPA 6020A
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B

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Wastewater Metals II	
Vanadium, Total	EPA 6020
	EPA 6020A
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	EPA 6020A
Wastewater Metals III	
Cobalt, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Molybdenum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6010C
	EPA 6020
	EPA 6020A
Thallium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
	EPA 6010C
	EPA 6020A
Tin, Total	EPA 200.7 Rev. 4.4

Wastewater Metals III	
Tin, Total	EPA 6010B
	EPA 6010C
Titanium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
	EPA 6010C
Wastewater Miscellaneous	
Boron, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Bromide	EPA 300.0 Rev. 2.1
Color	SM 18-21 2120B (01)
Cyanide, Total	EPA 335.4 Rev. 1.0
Formaldehyde	EPA 8315
Oil and Grease Total Recoverable (HEM	EPA 1664A
Organic Carbon, Total	SM 18-21 5310C (00)
Phenols	EPA 420.4 Rev. 1.0
Silica, Dissolved	SM 20-21 4500 SiO2-C (97)
Specific Conductance	SM 18-21 2510B (97)
Sulfide (as S)	SM 18-21 4500-S D (00)
	SM 19-21 4500-S F (00)
Surfactant (MBAS)	SM 18-21 5540C (00)
Sample Preparation Methods	
	EPA 200.2
	EPA 3005A
	EPA 3010A
	EPA 3020A

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Sample Preparation Methods

EPA 3510C
EPA 3520C
EPA 5030B
SM 18-21 4500-NH3 B (97)

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All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8260B
Acrylonitrile	EPA 8260B
Ethyl methacrylate	EPA 8260B
Methyl methacrylate	EPA 8260B
Amines	
1,2-Diphenylhydrazine	EPA 8270C
	EPA 8270D
1,4-Phenylenediamine	EPA 8270C
	EPA 8270D
1-Naphthylamine	EPA 8270C
	EPA 8270D
2-Naphthylamine	EPA 8270C
	EPA 8270D
2-Nitroaniline	EPA 8270C
	EPA 8270D
3-Nitroaniline	EPA 8270C
	EPA 8270D
4-Chloroaniline	EPA 8270C
4-Nitroaniline	EPA 8270C
	EPA 8270D
5-Nitro-o-toluidine	EPA 8270C
	EPA 8270D
Aniline	EPA 8270C
	EPA 8270D
Carbazole	EPA 8270C

Amines	
Carbazole	EPA 8270D
Diphenylamine	EPA 8270C
Methapyrilene	EPA 8270C
	EPA 8270D
Pronamide	EPA 8270C
	EPA 8270D
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270C
	EPA 8270D
3,3'-Dimethylbenzidine	EPA 8270C
	EPA 8270D
Carbamate Pesticides	
Aldicarb	EPA 8318
	EPA 8318A
Aldicarb Sulfone	EPA 8318
	EPA 8318A
Carbofuran	EPA 8318
	EPA 8318A
Characteristic Testing	
Ignitability	EPA 1010A
Reactivity	SW-846 Ch7 Sec. 7.3
TCLP	EPA 1311
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081A

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Chlorinated Hydrocarbon Pesticides		Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081B	Endosulfan I	EPA 8081B
4,4'-DDE	EPA 8081A	Endosulfan II	EPA 8081A
	EPA 8081B		EPA 8081B
4,4'-DDT	EPA 8081A	Endosulfan sulfate	EPA 8081A
	EPA 8081B		EPA 8081B
Aldrin	EPA 8081A	Endrin	EPA 8081A
	EPA 8081B		EPA 8081B
alpha-BHC	EPA 8081A	Endrin aldehyde	EPA 8081A
	EPA 8081B		EPA 8081B
alpha-Chlordane	EPA 8081A	Endrin Ketone	EPA 8081A
	EPA 8081B		EPA 8081B
Atrazine	EPA 8270C	gamma-Chlordane	EPA 8081A
	EPA 8270D		EPA 8081B
beta-BHC	EPA 8081A	Heptachlor	EPA 8081A
	EPA 8081B		EPA 8081B
Chlordane Total	EPA 8081A	Heptachlor epoxide	EPA 8081A
	EPA 8081B		EPA 8081B
Chlorobenzilate	EPA 8270C	Kepone	EPA 8081A
	EPA 8270D		EPA 8081B
delta-BHC	EPA 8081A		EPA 8270C
	EPA 8081B		EPA 8270D
Diallate	EPA 8270C	Lindane	EPA 8081A
	EPA 8270D		EPA 8081B
Dieldrin	EPA 8081A	Methoxychlor	EPA 8081A
	EPA 8081B		EPA 8081B
Endosulfan I	EPA 8081A	Pentachloronitrobenzene	EPA 8270C

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Chlorinated Hydrocarbon Pesticides	
Pentachloronitrobenzene	EPA 8270D
Simazine	EPA 8141A
	EPA 8141B
Toxaphene	EPA 8081A
	EPA 8081B

Chlorinated Hydrocarbons	
1,2,3-Trichlorobenzene	EPA 8260B
1,2,4,5-Tetrachlorobenzene	EPA 8270C
	EPA 8270D
1,2,4-Trichlorobenzene	EPA 8270C
1-Chloronaphthalene	EPA 8270D
2-Chloronaphthalene	EPA 8270C
	EPA 8270D
Hexachlorobenzene	EPA 8270C
	EPA 8270D
Hexachlorobutadiene	EPA 8270C
	EPA 8270D
Hexachlorocyclopentadiene	EPA 8270C
	EPA 8270D
Hexachloroethane	EPA 8270C
	EPA 8270D
Hexachloropropene	EPA 8270C
	EPA 8270D
Pentachlorobenzene	EPA 8270C
	EPA 8270D

Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
2,4-DB	EPA 8151A
Dalapon	EPA 8151A
Dicamba	EPA 8151A
Dichloroprop	EPA 8151A
Dinoseb	EPA 8151A
MCPA	EPA 8151A
MCPP	EPA 8151A
Pentachlorophenol	EPA 8151A

Dioxins and Furans	
1,2,3,4,6,7,8,9-Octachlorodibenzofuran	EPA 8290A
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dio	EPA 8290A
1,2,3,4,6,7,8-Heptachlorodibenzofuran	EPA 8290A
1,2,3,4,6,7,8-Heptachlorodibenzo-p-diox	EPA 8290A
1,2,3,4,7,8,9-Heptachlorodibenzofuran	EPA 8290A
1,2,3,4,7,8-Hexachlorodibenzofuran	EPA 8290A
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	EPA 8290A
1,2,3,6,7,8-Hexachlorodibenzofuran	EPA 8290A
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	EPA 8290A
1,2,3,7,8,9-Hexachlorodibenzofuran	EPA 8290A
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	EPA 8290A
1,2,3,7,8-Pentachlorodibenzofuran	EPA 8290A
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	EPA 8290A

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Dioxins and Furans	
2,3,4,6,7,8-Hexachlorodibenzofuran	EPA 8290A
2,3,4,7,8-Pentachlorodibenzofuran	EPA 8290A
2,3,7,8-Tetrachlorodibenzofuran	EPA 8290A
2,3,7,8-Tetrachlorodibenzo-p-dioxin	EPA 8290A
Haloethers	
4-Bromophenylphenyl ether	EPA 8270C
	EPA 8270D
4-Chlorophenylphenyl ether	EPA 8270C
	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 8270C
	EPA 8270D
Bis(2-chloroethyl)ether	EPA 8270C
	EPA 8270D
Bis(2-chloroisopropyl) ether	EPA 8270C
	EPA 8270D
Low Level Polynuclear Aromatic Hydrocarbons	
Acenaphthene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Acenaphthylene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Anthracene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Benzo(a)anthracene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Benzo(a)pyrene Low Level	EPA 8270C SIM

Low Level Polynuclear Aromatic Hydrocarbons	
Benzo(a)pyrene Low Level	EPA 8270D SIM
Benzo(b)fluoranthene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Benzo(g,h,i)perylene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Benzo(k)fluoranthene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Chrysene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Dibenzo(a,h)anthracene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Fluoranthene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Fluorene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Indeno(1,2,3-cd)pyrene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Naphthalene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Phenanthrene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Pyrene Low Level	EPA 8270C SIM
	EPA 8270D SIM
Metals I	
Barium, Total	EPA 6010B

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WADSWORTH CENTER

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CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DUANE LUCKENBILL
EUROFINS LANCASTER LABORATORIES, INC.
2425 NEW HOLLAND PIKE
LANCASTER, PA 17601-5994

NY Lab Id No: 10670

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Metals I		**Metals I**	
Barium, Total	EPA 6010C	Manganese, Total	EPA 6020A
Cadmium, Total	EPA 6010B	Nickel, Total	EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020		EPA 6020
	EPA 6020A		EPA 6020A
Calcium, Total	EPA 6010B	Potassium, Total	EPA 6010B
	EPA 6010C		EPA 6010C
Chromium, Total	EPA 6010B	Silver, Total	EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020		EPA 6020
	EPA 6020A		EPA 6020A
Copper, Total	EPA 6010B	Sodium, Total	EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020	Strontium, Total	EPA 6010B
	EPA 6020A		EPA 6010C
Iron, Total	EPA 6010B	**Metals II**	
	EPA 6010C	Aluminum, Total	EPA 6010B
Lead, Total	EPA 6010B		EPA 6010C
	EPA 6010C		EPA 6020
	EPA 6020		EPA 6020A
	EPA 6020A	Antimony, Total	EPA 6010B
Magnesium, Total	EPA 6010B		EPA 6010C
	EPA 6010C		EPA 6020
Manganese, Total	EPA 6010B		EPA 6020A
	EPA 6010C	Arsenic, Total	EPA 6010B
	EPA 6020		

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Metals II		**Metals III**	
Arsenic, Total	EPA 6010C	Cobalt, Total	EPA 6010C
	EPA 6020		EPA 6020
	EPA 6020A		EPA 6020A
Beryllium, Total	EPA 6010B	Molybdenum, Total	EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020		EPA 6020
	EPA 6020A		EPA 6020A
Chromium VI	EPA 7196A	Thallium, Total	EPA 6010B
	EPA 7199		EPA 6010C
Mercury, Total	EPA 7471A		EPA 6020
	EPA 7471B		EPA 6020A
Selenium, Total	EPA 6010B	Tin, Total	EPA 6010B
	EPA 6010C		EPA 6010C
	EPA 6020	Titanium, Total	EPA 6010B
	EPA 6020A		EPA 6010C
Vanadium, Total	EPA 6010B	**Miscellaneous**	
	EPA 6010C	Boron, Total	EPA 6010B
	EPA 6020		EPA 6010C
	EPA 6020A	Organic Carbon, Total	EPA 9060
Zinc, Total	EPA 6010B	Phenols	EPA 9066
	EPA 6010C	**Nitroaromatics and Isophorone**	
	EPA 6020	1,2-Dinitrobenzene	EPA 8270C
	EPA 6020A		EPA 8270D
Metals III		1,3,5-Trinitrobenzene	EPA 8270C
Cobalt, Total	EPA 6010B		EPA 8270D

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Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8330
	EPA 8330A
1,3-Dinitrobenzene	EPA 8270C
	EPA 8270D
	EPA 8330
	EPA 8330A
1,4-Dinitrobenzene	EPA 8270C
	EPA 8270D
1,4-Naphthoquinone	EPA 8270C
	EPA 8270D
2,4,6-Trinitrotoluene	EPA 8330
2,4-Dinitrotoluene	EPA 8270C
	EPA 8270D
2,6-Dinitrotoluene	EPA 8270C
	EPA 8270D
2-Amino-4,6-dinitrotoluene	EPA 8330
	EPA 8330A
2-Nitrotoluene	EPA 8330
	EPA 8330A
3-Nitrotoluene	EPA 8330
	EPA 8330A
4-Amino-2,6-dinitrotoluene	EPA 8330
	EPA 8330A
4-Dimethylaminoazobenzene	EPA 8270C
	EPA 8270D
4-Nitrotoluene	EPA 8330

Nitroaromatics and Isophorone	
4-Nitrotoluene	EPA 8330A
Hexahydro-1,3,5-trinitro-1,3,5-triazine	EPA 8330
	EPA 8330A
Isophorone	EPA 8270C
	EPA 8270D
Methyl-2,4,6-trinitrophenylnitramine	EPA 8330
	EPA 8330A
Nitrobenzene	EPA 8270C
	EPA 8270D
	EPA 8330
	EPA 8330A
Nitroquinoline-1-oxide	EPA 8270C
	EPA 8270D
Octahydro-tetranitro-tetrazocine	EPA 8330
	EPA 8330A
Pyridine	EPA 8270C
	EPA 8270D
Nitrosoamines	
N-Nitrosodiethylamine	EPA 8270C
	EPA 8270D
N-Nitrosodimethylamine	EPA 8270C
	EPA 8270D
N-Nitrosodi-n-butylamine	EPA 8270C
	EPA 8270D
N-Nitrosodi-n-propylamine	EPA 8270C

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Nitrosoamines	
N-Nitrosodi-n-propylamine	EPA 8270D
N-Nitrosodiphenylamine	EPA 8270C
	EPA 8270D
N-nitrosomethylethylamine	EPA 8270C
	EPA 8270D
N-nitrosomorpholine	EPA 8270C
	EPA 8270D
N-nitrosopiperidine	EPA 8270C
	EPA 8270D
N-Nitrosopyrrolidine	EPA 8270C
	EPA 8270D
Organophosphate Pesticides	
Azinphos methyl	EPA 8141A
	EPA 8141B
Bolstar	EPA 8141A
	EPA 8141B
Chlorpyriphos	EPA 8141A
	EPA 8141B
Coumaphos	EPA 8141A
	EPA 8141B
Demeton-O	EPA 8141A
	EPA 8141B
Demeton-S	EPA 8141A
	EPA 8141B
Diazinon	EPA 8141A

Organophosphate Pesticides	
Diazinon	EPA 8141B
Dichlorvos	EPA 8141A
	EPA 8141B
Disulfoton	EPA 8141A
	EPA 8141B
EPN	EPA 8141A
	EPA 8141B
Ethion	EPA 8141A
	EPA 8141B
Ethoprop	EPA 8141A
	EPA 8141B
Famphur	EPA 8141A
	EPA 8141B
Fensulfothion	EPA 8141A
	EPA 8141B
Fenthion	EPA 8141A
	EPA 8141B
Malathion	EPA 8141A
	EPA 8141B
Mevinphos	EPA 8141A
	EPA 8141B
NALED	EPA 8141A
	EPA 8141B
Parathion ethyl	EPA 8141A
	EPA 8141B
Parathion methyl	EPA 8141A

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Organophosphate Pesticides	
Parathion methyl	EPA 8141B
Phorate	EPA 8141A
	EPA 8141B
Ronnel	EPA 8141A
	EPA 8141B
Tokuthion	EPA 8141A
	EPA 8141B
Trichloronate	EPA 8141A
	EPA 8141B
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015B
	EPA 8015C
Gasoline Range Organics	EPA 8015B
	EPA 8015C
	EPA 8260B
	EPA 8260C
Oil and Grease Total Recoverable (HEM	EPA 9071 (Solvent:Hexane)
	EPA 9071B (Solvent:Hexane)
Phthalate Esters	
Benzyl butyl phthalate	EPA 8270C
	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 8270C
	EPA 8270D
Diethyl phthalate	EPA 8270C
	EPA 8270D

Phthalate Esters	
Dimethyl phthalate	EPA 8270C
	EPA 8270D
Di-n-butyl phthalate	EPA 8270C
	EPA 8270D
Di-n-octyl phthalate	EPA 8270C
	EPA 8270D
Polychlorinated Biphenyls	
2,2',3,3',4,4',5,6-Octachlorobiphenyl	EPA 1668 A
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	EPA 1668 A
2,2',3,3',4,4',5-Heptachlorobiphenyl	EPA 1668 A
2,2',3,3',4,4'-Hexachlorobiphenyl	EPA 1668 A
2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	EPA 1668 A
2,2',3,3',5,5',6,6'-Octachlorobiphenyl	EPA 1668 A
2,2',3,4,4',5,5'-Heptachlorobiphenyl	EPA 1668 A
2,2',3,4,4',5',6-Heptachlorobiphenyl	EPA 1668 A
2,2',3,4,4',5'-Hexachlorobiphenyl	EPA 1668 A
2,2',3,4,4',6,6'-Heptachlorobiphenyl	EPA 1668 A
2,2',3,4',5,5',6-Heptachlorobiphenyl	EPA 1668 A
2,2',3,4,5,5'-Hexachlorobiphenyl	EPA 1668 A
2,2',3,4',5,6,6'-Heptachlorobiphenyl	EPA 1668 A
2,2',3,4,5'-Pentachlorobiphenyl	EPA 1668 A
2,2',3,5,5',6-Hexachlorobiphenyl	EPA 1668 A
2,2',3,5'-Tetrachlorobiphenyl	EPA 1668 A
2,2',4,4',5,5'-Hexachlorobiphenyl	EPA 1668 A
2,2',4,4',6,6'-Hexachlorobiphenyl	EPA 1668 A

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Polychlorinated Biphenyls	
2,2',4,5,5'-Pentachlorobiphenyl	EPA 1668 A
2,2',4,5'-Tetrachlorobiphenyl	EPA 1668 A
2,2',4,6,6'-Pentachlorobiphenyl	EPA 1668 A
2,2',5,5'-Tetrachlorobiphenyl	EPA 1668 A
2,2',5-Trichlorobiphenyl	EPA 1668 A
2,2',6,6'-Tetrachlorobiphenyl	EPA 1668 A
2,2',6-Trichlorobiphenyl	EPA 1668 A
2,3,3',4,4',5,5',6-Octachlorobiphenyl	EPA 1668 A
2,3,3',4,4',5,5'-Heptachlorobiphenyl	EPA 1668 A
2,3,3',4,4',5'-Hexachlorobiphenyl	EPA 1668 A
2,3,3',4,4',5-Hexachlorobiphenyl	EPA 1668 A
2,3,3',4,4'-Pentachlorobiphenyl	EPA 1668 A
2,3,3',4,6-Pentachlorobiphenyl	EPA 1668 A
2,3',4,4',5,5'-Hexachlorobiphenyl	EPA 1668 A
2,3',4,4',5'-Pentachlorobiphenyl	EPA 1668 A
2,3,4,4',5-Pentachlorobiphenyl	EPA 1668 A
2,3',4,4',5-Pentachlorobiphenyl	EPA 1668 A
2,3',4,4'-Tetrachlorobiphenyl	EPA 1668 A
2,3-Dichlorobiphenyl	EPA 1668 A
2,4,4'-Trichlorobiphenyl	EPA 1668 A
2,4',5-Trichlorobiphenyl	EPA 1668 A
2,4'-Dichlorobiphenyl	EPA 1668 A
3,3',4,4',5,5'-Hexachlorobiphenyl	EPA 1668 A
3,3',4,4',5-Pentachlorobiphenyl	EPA 1668 A
3,3',4,4'-Tetrachlorobiphenyl	EPA 1668 A
3,3',4,5,5'-Pentachlorobiphenyl	EPA 1668 A

Polychlorinated Biphenyls	
3,4,4',5-Tetrachlorobiphenyl	EPA 1668 A
3,4,4'-Trichlorobiphenyl	EPA 1668 A
PCB-1016	EPA 8082
	EPA 8082A
PCB-1221	EPA 8082
	EPA 8082A
PCB-1232	EPA 8082
	EPA 8082A
PCB-1242	EPA 8082
	EPA 8082A
PCB-1248	EPA 8082
	EPA 8082A
PCB-1254	EPA 8082
	EPA 8082A
PCB-1260	EPA 8082
	EPA 8082A
PCB-1262	EPA 8082
	EPA 8082A
PCB-1268	EPA 8082
	EPA 8082A

Polynuclear Aromatic Hydrocarbons	
2-Acetylaminofluorene	EPA 8270D
3-Methylcholanthrene	EPA 8270D
7,12-Dimethylbenzyl (a) anthracene	EPA 8270C
	EPA 8270D

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Polynuclear Aromatic Hydrocarbons	
Acenaphthene	EPA 8270C
	EPA 8270D
Acenaphthylene	EPA 8270C
	EPA 8270D
Anthracene	EPA 8270C
	EPA 8270D
Benzo(a)anthracene	EPA 8270C
	EPA 8270D
Benzo(a)pyrene	EPA 8270C
	EPA 8270D
Benzo(b)fluoranthene	EPA 8270C
	EPA 8270D
Benzo(ghi)perylene	EPA 8270C
	EPA 8270D
Benzo(k)fluoranthene	EPA 8270C
	EPA 8270D
Chrysene	EPA 8270C
	EPA 8270D
Dibenzo(a,h)anthracene	EPA 8270C
	EPA 8270D
Dibenzo(a,j)acridine	EPA 8270C
	EPA 8270D
Fluoranthene	EPA 8270C
	EPA 8270D
Fluorene	EPA 8270C
	EPA 8270D
Polynuclear Aromatic Hydrocarbons	
Indeno(1,2,3-cd)pyrene	EPA 8270C
	EPA 8270D
Naphthalene	EPA 8270C
	EPA 8270D
Phenanthrene	EPA 8270C
	EPA 8270D
Pyrene	EPA 8270C
	EPA 8270D
Priority Pollutant Phenols	
2,3,4,6 Tetrachlorophenol	EPA 8270C
	EPA 8270D
2,4,5-Trichlorophenol	EPA 8270C
	EPA 8270D
2,4,6-Trichlorophenol	EPA 8270C
	EPA 8270D
2,4-Dichlorophenol	EPA 8270C
	EPA 8270D
2,4-Dimethylphenol	EPA 8270C
	EPA 8270D
2,4-Dinitrophenol	EPA 8270C
	EPA 8270D
2,6-Dichlorophenol	EPA 8270C
	EPA 8270D
2-Chlorophenol	EPA 8270C
	EPA 8270D

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Priority Pollutant Phenols		**Semi-Volatile Organics**	
2-Methyl-4,6-dinitrophenol	EPA 8270C	1,4-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D		EPA 8270D
2-Methylphenol	EPA 8270C	2-Methylnaphthalene	EPA 8270C
	EPA 8270D		EPA 8270D
2-Nitrophenol	EPA 8270C	4-Amino biphenyl	EPA 8270C
	EPA 8270D		EPA 8270D
3-Methylphenol	EPA 8270C	Acetophenone	EPA 8270C
	EPA 8270D		EPA 8270D
4-Chloro-3-methylphenol	EPA 8270C	Aramite	EPA 8270C
	EPA 8270D		EPA 8270D
4-Methylphenol	EPA 8270C	Benzaldehyde	EPA 8270C
	EPA 8270D		EPA 8270D
4-Nitrophenol	EPA 8270C	Benzoic Acid	EPA 8270C
	EPA 8270D		EPA 8270D
Pentachlorophenol	EPA 8270C	Benzyl alcohol	EPA 8270C
	EPA 8270D		EPA 8270D
Phenol	EPA 8270C	Caprolactam	EPA 8270C
	EPA 8270D		EPA 8270D
Semi-Volatile Organics		Dibenzofuran	EPA 8270C
1,1'-Biphenyl	EPA 8270C	Ethyl methanesulfonate	EPA 8270C
	EPA 8270D		EPA 8270D
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C	Isosafrole	EPA 8270C
	EPA 8270D		EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C	Methyl methanesulfonate	EPA 8270C
	EPA 8270D		EPA 8270D
		O,O,O-Triethyl phosphorothioate	EPA 8270C

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Semi-Volatile Organics		**Volatile Aromatics**	
O,O,O-Triethyl phosphorothioate	EPA 8270D	p-Isopropyltoluene (P-Cymene)	EPA 8260B
Phenacetin	EPA 8270C	sec-Butylbenzene	EPA 8260B
	EPA 8270D	Styrene	EPA 8260B
Safrole	EPA 8270C	tert-Butylbenzene	EPA 8260B
	EPA 8270D	Toluene	EPA 8021B
Volatile Aromatics			EPA 8260B
1,2,4-Trichlorobenzene, Volatile	EPA 8260B	Total Xylenes	EPA 8021B
1,2,4-Trimethylbenzene	EPA 8260B		EPA 8260B
1,2-Dichlorobenzene	EPA 8260B	**Volatile Halocarbons**	
1,3,5-Trimethylbenzene	EPA 8260B	1,1,1,2-Tetrachloroethane	EPA 8260B
1,3-Dichlorobenzene	EPA 8260B	1,1,1-Trichloroethane	EPA 8260B
1,4-Dichlorobenzene	EPA 8260B	1,1,2,2-Tetrachloroethane	EPA 8260B
2-Chlorotoluene	EPA 8260B	1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
4-Chlorotoluene	EPA 8260B	1,1,2-Trichloroethane	EPA 8260B
Benzene	EPA 8021B	1,1-Dichloroethane	EPA 8260B
	EPA 8260B	1,1-Dichloroethene	EPA 8260B
Bromobenzene	EPA 8260B	1,1-Dichloropropene	EPA 8260B
Chlorobenzene	EPA 8260B	1,2,3-Trichloropropane	EPA 8260B
Ethyl benzene	EPA 8021B	1,2-Dibromo-3-chloropropane	EPA 8260B
	EPA 8260B	1,2-Dibromoethane	EPA 8260B
Isopropylbenzene	EPA 8021B	1,2-Dichloroethane	EPA 8260B
	EPA 8260B	1,2-Dichloropropane	EPA 8260B
Naphthalene, Volatile	EPA 8260B	1,3-Dichloropropane	EPA 8260B
n-Butylbenzene	EPA 8260B	2,2-Dichloropropane	EPA 8260B
n-Propylbenzene	EPA 8260B	2-Chloro-1,3-butadiene (Chloroprene)	EPA 8260B

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NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DUANE LUCKENBILL
EUROFINS LANCASTER LABORATORIES, INC.
2425 NEW HOLLAND PIKE
LANCASTER, PA 17601-5994

NY Lab Id No: 10670

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Volatile Halocarbons	
2-Chloroethylvinyl ether	EPA 8260B
3-Chloropropene (Allyl chloride)	EPA 8260B
Bromochloromethane	EPA 8260B
Bromodichloromethane	EPA 8260B
Bromoform	EPA 8260B
Bromomethane	EPA 8260B
Carbon tetrachloride	EPA 8260B
Chloroethane	EPA 8260B
Chloroform	EPA 8260B
Chloromethane	EPA 8260B
cis-1,2-Dichloroethene	EPA 8260B
cis-1,3-Dichloropropene	EPA 8260B
Dibromochloromethane	EPA 8260B
Dibromomethane	EPA 8260B
Dichlorodifluoromethane	EPA 8260B
Hexachlorobutadiene, Volatile	EPA 8260B
Methylene chloride	EPA 8260B
Tetrachloroethene	EPA 8260B
trans-1,2-Dichloroethene	EPA 8260B
trans-1,3-Dichloropropene	EPA 8260B
trans-1,4-Dichloro-2-butene	EPA 8260B
Trichloroethene	EPA 8260B
Trichlorofluoromethane	EPA 8260B
Vinyl chloride	EPA 8260B

Volatile Organics	
1,4-Dioxane	EPA 8260B
2-Butanone (Methylethyl ketone)	EPA 8260B
2-Hexanone	EPA 8260B
4-Methyl-2-Pentanone	EPA 8260B
Acetone	EPA 8260B
Acetonitrile	EPA 8260B
Carbon Disulfide	EPA 8260B
Cyclohexane	EPA 8260B
Ethyl Acetate	EPA 8260B
Ethylene Glycol	EPA 8015C
Isobutyl alcohol	EPA 8260B
Methyl acetate	EPA 8260B
Methyl cyclohexane	EPA 8260B
Methyl tert-butyl ether	EPA 8260B
n-Butanol	EPA 8260B
o-Toluidine	EPA 8270C
	EPA 8270D
Propionitrile	EPA 8260B
tert-butyl alcohol	EPA 8260B
Vinyl acetate	EPA 8260B

Sample Preparation Methods
EPA 3005A
EPA 3010A
EPA 3020A
EPA 3050B

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Sample Preparation Methods

EPA 3060A
EPA 3540C
EPA 3546
EPA 3550B
EPA 3550C
EPA 5035
EPA 5035A-H
EPA 5035A-L

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All approved analytes are listed below:

Acrylates	
Acetonitrile	EPA TO-15
Acrylonitrile	EPA TO-15
Ethyl acrylate	EPA TO-15
Methyl methacrylate	EPA TO-15
Chlorinated Hydrocarbons	
1,2,4-Trichlorobenzene	EPA TO-14A
	EPA TO-15
Hexachlorobutadiene	EPA TO-14A
	EPA TO-15
Polynuclear Aromatics	
Naphthalene	EPA TO-15
Purgeable Aromatics	
1,2,4-Trimethylbenzene	EPA TO-14A
	EPA TO-15
1,2-Dichlorobenzene	EPA TO-14A
	EPA TO-15
1,3,5-Trimethylbenzene	EPA TO-14A
	EPA TO-15
1,3-Dichlorobenzene	EPA TO-14A
	EPA TO-15
1,4-Dichlorobenzene	EPA TO-14A
	EPA TO-15
2-Chlorotoluene	EPA TO-15
Benzene	EPA TO-14A
	EPA TO-15
Chlorobenzene	EPA TO-14A
	EPA TO-15
Ethyl benzene	EPA TO-14A
	EPA TO-15
Isopropylbenzene	EPA TO-15
m/p-Xylenes	EPA TO-15
o-Xylene	EPA TO-15
Styrene	EPA TO-14A
	EPA TO-15
Toluene	EPA TO-14A
	EPA TO-15
Total Xylenes	EPA TO-14A
	EPA TO-15
Purgeable Halocarbons	
1,1,1-Trichloroethane	EPA TO-14A
	EPA TO-15
1,1,2,2-Tetrachloroethane	EPA TO-14A
	EPA TO-15
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA TO-14A
	EPA TO-15
1,1,2-Trichloroethane	EPA TO-14A
	EPA TO-15
1,1-Dichloroethane	EPA TO-14A
	EPA TO-15

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All approved analytes are listed below:

Purgeable Halocarbons	
1,1-Dichloroethene	EPA TO-14A
	EPA TO-15
1,2-Dibromoethane	EPA TO-14A
	EPA TO-15
1,2-Dichloroethane	EPA TO-14A
	EPA TO-15
1,2-Dichloropropane	EPA TO-14A
	EPA TO-15
Bromodichloromethane	EPA TO-15
Bromoform	EPA TO-15
Bromomethane	EPA TO-14A
	EPA TO-15
Carbon tetrachloride	EPA TO-14A
	EPA TO-15
Chloroethane	EPA TO-14A
	EPA TO-15
Chloroform	EPA TO-14A
	EPA TO-15
Chloromethane	EPA TO-14A
	EPA TO-15
cis-1,2-Dichloroethene	EPA TO-14A
	EPA TO-15
cis-1,3-Dichloropropene	EPA TO-14A
	EPA TO-15
Dibromochloromethane	EPA TO-15
Dichlorodifluoromethane	EPA TO-14A

Purgeable Halocarbons	
Dichlorodifluoromethane	EPA TO-15
Methylene chloride	EPA TO-15
Tetrachloroethene	EPA TO-14A
	EPA TO-15
trans-1,2-Dichloroethene	EPA TO-14A
	EPA TO-15
trans-1,3-Dichloropropene	EPA TO-14A
	EPA TO-15
Trichloroethene	EPA TO-14A
	EPA TO-15
Trichlorofluoromethane	EPA TO-14A
Vinyl bromide	EPA TO-15
Vinyl chloride	EPA TO-15
Volatile Organics	
1,3-Butadiene	EPA TO-15
1,4-Dioxane	EPA TO-15
2-Butanone (Methylethyl ketone)	EPA TO-15
4-Methyl-2-Pentanone	EPA TO-15
Acetone	EPA TO-15
Carbon Disulfide	EPA TO-15
Hexane	EPA TO-15
Methyl iodide	EPA TO-15
Methyl tert-butyl ether	EPA TO-15
tert-butyl alcohol	EPA TO-15
Vinyl acetate	EPA TO-15

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MS. HEIDI HAYES
Eurofins Air Toxics, Inc.
180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630

NY Lab Id No: 11291

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved analytes are listed below:

Chlorinated Hydrocarbons	
1,2,4-Trichlorobenzene	EPA TO-14A
	EPA TO-15
Hexachlorobutadiene	EPA TO-14A
	EPA TO-15
Miscellaneous Air	
Formaldehyde	EPA TO-11A
Polychlorinated Biphenyls	
PCB-1242	EPA TO-10A
PCB-1254	EPA TO-10A
PCB-1260	EPA TO-10A
Polynuclear Aromatics	
Acenaphthene	EPA TO-13A
Acenaphthylene	EPA TO-13A
Anthracene	EPA TO-13A
Benzo(a)anthracene	EPA TO-13A
Benzo(a)pyrene	EPA TO-13A
Benzo(b)fluoranthene	EPA TO-13A
Benzo(ghi)perylene	EPA TO-13A
Benzo(k)fluoranthene	EPA TO-13A
Chrysene	EPA TO-13A
Dibenzo(a,h)anthracene	EPA TO-13A
Fluoranthene	EPA TO-13A
Fluorene	EPA TO-13A
Indeno(1,2,3-cd)pyrene	EPA TO-13A

Polynuclear Aromatics	
Naphthalene	EPA TO-13A
Phenanthrene	EPA TO-13A
Pyrene	EPA TO-13A
Purgeable Aromatics	
1,2,4-Trimethylbenzene	EPA TO-14A
	EPA TO-15
1,2-Dichlorobenzene	EPA TO-14A
	EPA TO-15
1,3,5-Trimethylbenzene	EPA TO-14A
	EPA TO-15
1,3-Dichlorobenzene	EPA TO-14A
	EPA TO-15
	EPA TO-17
1,4-Dichlorobenzene	EPA TO-14A
	EPA TO-15
Benzene	EPA TO-14A
	EPA TO-15
	EPA TO-3
Chlorobenzene	EPA TO-14A
	EPA TO-15
Ethyl benzene	EPA TO-14A
	EPA TO-15
Isopropylbenzene	EPA TO-15
	EPA TO-17
Styrene	EPA TO-14A

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All approved analytes are listed below:

Purgeable Aromatics	
Styrene	EPA TO-15
	EPA TO-17
Toluene	EPA TO-14A
	EPA TO-15
Total Xylenes	EPA TO-14A
	EPA TO-15
Purgeable Halocarbons	
1,1,1-Trichloroethane	EPA TO-14A
	EPA TO-15
	EPA TO-17
1,1,2,2-Tetrachloroethane	EPA TO-14A
	EPA TO-15
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA TO-14A
	EPA TO-15
1,1,2-Trichloroethane	EPA TO-14A
	EPA TO-15
	EPA TO-17
1,1-Dichloroethane	EPA TO-14A
	EPA TO-15
1,1-Dichloroethene	EPA TO-14A
	EPA TO-15
1,2-Dibromoethane	EPA TO-14A
	EPA TO-15
1,2-Dichloroethane	EPA TO-14A
	EPA TO-15

Purgeable Halocarbons	
1,2-Dichloropropane	EPA TO-14A
	EPA TO-15
Bromoform	EPA TO-15
Bromomethane	EPA TO-14A
	EPA TO-15
Carbon tetrachloride	EPA TO-14A
	EPA TO-15
Chloroethane	EPA TO-14A
	EPA TO-15
Chloroform	EPA TO-14A
	EPA TO-15
Chloromethane	EPA TO-14A
	EPA TO-15
cis-1,2-Dichloroethene	EPA TO-14A
	EPA TO-15
	EPA TO-17
cis-1,3-Dichloropropene	EPA TO-14A
	EPA TO-15
Dibromochloromethane	EPA TO-15
Dichlorodifluoromethane	EPA TO-14A
	EPA TO-15
Methylene chloride	EPA TO-14A
	EPA TO-15
Tetrachloroethene	EPA TO-14A
	EPA TO-15
trans-1,2-Dichloroethene	EPA TO-14A

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All approved analytes are listed below:

Purgeable Halocarbons	
trans-1,2-Dichloroethene	EPA TO-15
trans-1,3-Dichloropropene	EPA TO-14A
	EPA TO-15
Trichloroethene	EPA TO-14A
	EPA TO-15
	EPA TO-17
Trichlorofluoromethane	EPA TO-14A
	EPA TO-15
Vinyl chloride	EPA TO-14A
	EPA TO-15
Volatile Chlorinated Organics	
Benzyl chloride	EPA TO-14A
	EPA TO-15
Volatile Organics	
1,2-Dichlorotetrafluoroethane	EPA TO-14A
1,3-Butadiene	EPA TO-15
1,4-Dioxane	EPA TO-15
2,2,4-Trimethylpentane	EPA TO-15
2-Butanone (Methylethyl ketone)	EPA TO-15
	EPA TO-17
4-Methyl-2-Pentanone	EPA TO-15
Acetaldehyde	EPA TO-11A
Acetone	EPA TO-11A
Carbon Disulfide	EPA TO-15
	EPA TO-17
Volatile Organics	
Hexane	EPA TO-15
	EPA TO-17
Methyl tert-butyl ether	EPA TO-15
Vinyl acetate	EPA TO-15

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